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Paper A

LABOUR AWARDS AND DOCUMENTATION

EPTH CLASSIFICATION 31

N K GOIL
Ministry of Labour Library, New Delhi

hows the development of labour awards in ndia and the machinery for implementing them. numerates the sources – primary and secondry – where labour awards are reported. Examines documentation work for organising literature on labour awards. Illustrates the pplication of postulational approach in classification and makes a comparative study of CC and UDC. Examines some problems in cataloguing and the types of entries to be provided to meet the likely approaches of readers. Describes the structure, featuring and production of documentation lists. Isolates problems for further pursuit.

Contractions used:-

(ACI)	Anteriorising Common Isolate;
(BC)	Basic Class;
CC	Colon Classification;
CCC	Classified Catalogue Code;
DC	Decimal Classification;
[E]	Energy Facet;
[2E]	Second Round Energy Facet;
LC	Library of Congress Classification;
[P]	Personality Facet;
P2]	Second Level Personality Facet;
3]	Third Level Personality Facet;
P]	Second Round Personality Facet;
D)	Subject Device
]	Time Facet; and
DC	Universal Decimal Classification.

0 INTRODUCTION

Two fundamental rights acquired by the industrial workers have been the outcome of their incessant and continued struggle. These are as follows:

1 The right to organise themselves to protect tneir interest without molestation or victimisation by the employers; and

2 The right to resort to strike as a means of enforcing their demand.

Leaving the workers and the employers to come to compromise between themselves would have meant chaos in society. It would have certainly held back industrial progress.

01 Beginning of Legislation

Therefore, in order to maintain good harmonious industrial relation, the governments realised the urgency for restricting the rights of employers to dismiss, and to avert strikes by the employees. Accordingly the Conciliation Act of 1896 was enacted in U.K. In our own country the Trade Disputes Act of 1929 was enacted for conciliation and settlement of industrial disputes.

02 Industrial Disputes

Industrial disputes are generally the outcome of the following:

1 Compensation due to illegal lockout, or retrenchment because of economy, re-organisation, etc;

2 Living vs minimum wage;

3 Bonus, such as profit bonus, wage bonus and production bonus;

4 Allowances, such as dearness allowance and house rent allowance;

5 Hours of work and leave;

6 Social security, such as provident fund and gratuity; and

7 Discharge or dismissal due to various reasons.

Industrial disputes cause stoppage of work and a direct loss to the workers and employers alike. It also causes an indirect adverse effect on the society at large. Inspite of this, every month many industrial disputes do arise. For example in September 1958, there were 132 work-stoppages. The number of workers involved was 58,804. The man-days lost were 415,083(1).

1 COURTS OF ADJUDICATION

To reduce the number of industrial disputes and to evolve a Judicial or Quasi-Judicial machinery to conciliate settle, or adjudicate, every country has evolved its own set up. To provide for compulsory arbitration the Industrial Disputes Act of 1947 and the Industrial Disputes (Appellate Tribunal) Act of 1950 were passed in India. These were amended by the Industrial Disputes (Amendment and Miscellaneous Provisions) Act of 1956. According to this Act, we have a three-tier system of Labour adjudication machinery in the country — Labour Courts, Industrial Tribunals, and National Tribunals. These Courts are of a judicial nature. The field of operation of each of them is distinctly provided by rules.

11 Jurisdiction of Labour Courts

The Jurisdiction of Labour Courts extends to the following points:

1 Propriety or legality of an order passed by an employer under the standing orders;

2 Application and interpretation of standing orders;

3 Discharge or dismissal of workmen, including reinstatement of, or grant of relief to, workmen wrongfully dismissed;

4 Withdrawal of any customary concession or privilege;

5 Legality or otherwise of a strike or lockout; and

6 All matters other than those specified in the third schedule.

12 Jurisdiction of Industrial Tribunals

The Jurisdiction of Industrial Tribunals according to the third schedule extends to the following points:

1 Wage, including the period and mode of payment;

2 Compensatory and other allowances;

3 Hours of work and rest intervals;

4 Leave with wages and holidays;

5 Bonus, profit-sharing, provident fund and gratuity;

6 Shift-working otherwise than in accordance with the standing orders;

7 Classification by grade;

8 Rules of discipline;

9 Rationalisation;

10 Retrenchment of workmen and closure of establishment; and

11 Any other matter that may be prescribed.

13 Jurisdiction of National Tribunals

The Jurisdiction of National Tribunals according to Section 7B(1) of the Industrial Disputes Act, 1947 as modified upto June 1958, is provided as follows:

> "The Central Government may, by nofification in the official gazette, constitute one or more National Tribunals for the adjudication of Industrial Disputes which, in the opinion of the Central Government, involves question of national importance or are or such a nature that industrial establishments situated in more than one State are likely to be interested in, or affected by, such disputes".

Therefore any matter from the second as well as the third schedule can come under the purview of National Tribunal. An appeal on the awards or decisions of these Courts and Tribunals can be made only to High Courts, and from these to the Supreme Court.

14 Number of Awards

The number of Industrial Disputes referred to by various State Governments to Labour Courts and Industrial Tribunals for adjudication is increasing at a very rapid rate. The number of awards of these Courts and Tribunals is great. It is difficult and it is certainly a waste of time for each individual research worker to go through all the awards as and when they are published, to catch up the trend of these Courts, and to put his finger on the topics of his interest. Suppose one research worker is interested in the wage awards. He must scan every week through hundreds of awards in the 18 gazettes of the States and the Union Territories and in the Gazette of India. Taking Bombay State, between 1 April and 30 June 1958, the number of applications filed before the Labour Courts was 761. Of these, 214 were from Bombay region, 469 from Ahmedabad region and 78 from Sholapur region. 1605 applications were pending on 1 April 1958. Out of these, 573 applications were decided during the quarter (2).

2 DOCUMENTATION

Taking into consideration the number of awards of the Labour Courts, the Industrial Tribunals, and the National Tribunals. it will be a sheer waste of time of the top-management and research workers to go through all these materials and trace out what is relevant at the particular time. Therefore there is need for a person who can locate, assess, classify, and organise in a helpful sequence all these awards regularly, in anticipation of demand. He should also produce the relevant items, as and when required. Such a service is Documentation Service. The need for Documentation Service is being realised by research workers. They almost crave for it. No special library can do justice to its functions without this kind of service.

21 Documentation of Labour Awards

The process and methodology of documentation work have been enumerated by P N Kaula in his paper Documentation and social sciences(3). These processes as applied to the documentation work of labour-awards may now be discussed in detail.

3 HOST DOCUMENT

31 State Awards

First comes location. For the location of Labour Awards of Labour Courts and Industrial Tribunals, one has to go through the State Gazettes of the various States. They are the primary sources of information. But Uttar Pradesh has been an exception in this matter. The Labour Department of Uttar Pradesh used to publish its Labour Awards, not in the Uttar Pradesh Gazette but separately in the form of a departmental order. It is headed as illustrated below:

> "The Government of UP/Labour (A) Department No. 5834(SM)/XXXVI-A-235(SM)-1956 dated Lucknow, November 20, 1958/ ORDER/" In pursuance of Sub-section(3) of section 6 of the UP Industrial Disputes Act, 1947 (UP Act No. XXVIII of 1947), the Government of UP hereby publishes the annexed award of the Industrial Dispute (Sugar) given in the Industrial Dispute between the concern known as

> Messrs G F Kellner & Co Ltd, Kanpur and its workmen (Reference No. 37. of 1958)".

Therefore, it is not easy for the documentalist to chase the publications of the Labour Award in U P. However, in May 1957, Uttar Pradesh Government started the periodical entitled U P labour decisions. This is now the primary source of information on the Labour disputes in U P, for important select awards of the Labour Courts and the Industrial Tribunals of U P, the U P High Court of Judicature, Allahabad and the Supreme Court of India.

32 National Awards

The awards of the National Tribunals appointed by the Government of India, according to section 7(B) of Industrial Disputes Act of 1947 are published by the Ministry of Labour & Employment, of the Government of India, in the Gazette of India (Part II, Sec 3(ii). Here is an example:

> "Ministry of Labour & Employment, New Delhi, the 22nd December, 1958 S. O. — In pursuance of section 17 of the Industrial Disputes Act, 1947 (14 of 1947), tje Central Government hereby publishes the following award of the Industrial Tribunal, Calcutta in the Industrial Dispute between the Employers in relation to the Commissioner for the port of Calcutta and their workmen. CENTRAL GOVERNMENT INDUSTRIAL TRIBUNAL AT CALCUTTA. 20/1 GURUSADAY ROAD, BALLY GUNGE, CALCUTTA-19). Refernce No 8 of 1958".

33 Labour Appellate Tribunal Awards

Before the abolition of Labour Appellate Tribunal by the Industrial Disputes (Amendment and Miscellaneous Provisions) Act, of 1956, all the awards of Labour Appellate Tribunal were published in the periodical — Labour appeal cases.

34 Decisions of High Court

The decisions of the High Courts of each State on the industrial disputes in the State are found in the reports of the respective High Courts. They are also reported in various Law Journals such as Allahabad Law journal, Madras law journal and A I R (All India reporter) with a separate heading for each State as A I R (Madras).

35 Decisions of Supreme Court

The decisions of the Supreme Court of India are reported in the Supreme Court journal and AIR (Supreme Court).

36 Secondary Sources

Apart from the above primary sources of information, there are various secondary sources also. The following periodicals publish the awards and decisions already published either in the official gazettes or in the reports of the High Courts and the Supreme Court.

1 Labour law journal (Madras). (Started in April 1949, Monthly).

Reports important judgements of the Supreme Court and the High Courts of the various States. It also publishes the awards of the Labour Courts and Industrial Tribunals.

2 Industrial court reporter (Bombay). (Started in 1948, Monthly).

Reports the awards of the Bombay Labour Courts and the Industrial Tribunals, already published in the Bombay gazette, Part I - L.

3 Industrial law journal (Delhi). (Started in January 1956, Monthly).

Reports awards of the Labour Courts and the Industrial Tribunals, besides the decisions of the High Courts and Supreme Court.

4 Indian factories journal (Madras). (Started in 1949, Monthly).

Reports the awards of the Labour Courts and the Industrial Tribunals and the decisions of Supreme Court and High Courts.

4 EVALUATION

The next process in documentation work is to select and evaluate the documents with a view to what to have and what not to have? For slimming the documentation list, no clear cut principles have been evolved so far. We have been working on documentation work on labour awards for the last one year. Recently in the Seminar on Documentation in Social Sciences, jointly organised by the Indian Council of World Affairs and the Indian School of International Studies, it was decided that the following categories of documents should be taken into consideration for the slimming of documentation lists(3).

1 Learned articles and advanced treatises;

2 Source documents such as statistical data; administrative and committee reports;

3 Documents expressing opinion;

4 Documents giving re-statement of the results of research in non-technical language for the benefit of top management; and

5 Summaries and translations.

41 Source Documents

According to the second category of documents all the labour awards and decisions reported are source documents. Therefore all should be included in the documentation list. But, neither from utility point of view nor from economic point of view, it is desirable to cover all the awards and decisions. This has been our experience. Therefore, at present, the following principles are kept in view for the slimming of documentation list on labour awards.

1 All the awards and decisions, in which some economic points are raised, such as wage, bonus, dearness allowance, gratuity, provident fund etc, are inclused;

2 All the awards and decisions, in which the right to work of a group of workers is discussed, are also included — for example, retrenchment, termination of service, and dismissal of more than two workers on any ground, and the claims of these workers for re-instatement and compensation;

3 All decisions, in which the interpretation of some important caluse of the Industrial Disputes Act of 1947 is involved, such as the definition of the workmen, are also included. For example:

(1) Assam, Labour Court/Deoparie T E P O S Samather, Sib Sagar, belonging to Begidhala Tea and Trading Co Ltd, vs Workmen. /(Assam gazette 5-2-1958, 269-72).

(2) India, Supereme Court/Workmen of Dimakulhi Tea Estate. /(Assam Chah Karmachari Sangha) vs Dimakashi Tea Estate. (Labour law journal, 1 April 1958, 500-27).

In both the cases cited above, one point was involved. Whether a doctor employed by the company is a workman according to the definition given in the Industrial Disputes Act of 1947. Because when his service was terminated, the Labour Union took up his case.

5 CLASSIFICATION

After evaluating the material, the next step in documentation work is classification. Classification of Labour Awards involves various rounds and levels of facets and may involve also phases. Experience shows that enumerative classification schemes, such as D C and L C cannot help us. In spite of U D C being a partly faceted scheme, it does not help much to bring out co-extensiveness, without an unduly long coloned blocks of numbers. This is because of its structural short-coming due to its taking D C as its core. Therefore, the only scheme of classification capable of providing co-extensive class numbers is the C C. Sometimes the isolates actually scheduled in C C prove insufficient. But because C C is based on facet analysis and makes a postulational approach in the idea plane and in the notational plane, it is not difficult to make it work towards co-extensiveness.

51 Example by CC

For example, consider "Award by the Industrial Tribunal of Bombay on bonus for canteen workers in the cotton textile industry for the year 1957". In classifying the titl . w follow the seven steps prescribed by Ranganathan(4).

Step 0 Raw title:- Award by the Industrial Tribunal of Bombay on bonus for canteen workers in the cotton textile industry of Bombay for the year 1957.

Step 1 Full title:- Case study in the law of Bombay in an award in economics on bonus for the workers in the canteen of the cotton textile industry in 1957.

Step 2 Kernel title:- Award Bombay Law Economics Bonus Canteen Workers Cotton Textile Industry 1957 Case study.

Step 3 Analysed title:- Award in the law of Bombay [2E] Economics (BC) Bonus [2P] Workers E Canteen P2 Cotton Textile Industry [P] 1957 [T] Case study (ACI).

Note:- Award in the law of Bombay is an isolate formed by (SD).

Step 4 Transformed title:- Economics (BC) Cotton textile industry [P] Canteen [P2] Workers [E] Bonus [2P] Law (BC) Bombay [P] Cause of action [P2] Award [P3] 1957 [T] Case study (ACI).

Step 5 Title in Standard Terms:- Economics (BC) Cotton textile industry [P] Hotel [P2] Personnel management [E] Bonus [2P] Law (BC) Bombay [P] Cause of action [P2] Award [P3] 1957 [T] Case study (ACI).

Step 6 Title in Facet Numbers:- X(BC) 9(M71) [P] 9(M3) [P2] 9[E] 35952 [2P] Z(BC) 231[P] 7[P2] 75 [P3] N57 [T] y^7 (ACI).

Step 7 Synthesised Class Number:- X9(M71), 9(M3):935952:(Z231, 7, 75).N57y7

52 Example by UDC

All these steps upto and including 5 are the same as for CC. Therefore I give only steps 6 and 7.

Step 6 Title in Facet Numbers:- 33(BC): 677.21 [P] 641/642 [P2] 331 [E] 225 [2P] (34(BC) (547.1) [P] 347.951 [P2/P3]) "1957" T (094.8)(CAF).

Step7 Synthesised Class Number:- 33:677.21:641/642:331.225: [34(547.1):347.951] "1957" (094.8).

53 Comparison of CC and UDC

Comparison can be made from two angles.

531 Co-extensiveness

The co-extensiveness of the Class Numbers is the primary consideration in documentation. Because, if the Class Number is not co-extensive with the throught-content of the document, the usefulness of documentation is marred. In the example worked out in 51 and 52 the Class Numbers of both CC and UDC are co-extensive with the thought content of the document.

532 Length of Class Number

While co-extensiveness of the Class Number is a primary consideration, the Law of Parsimony dictates that the length of the Class Number should also be taken into consideration for the comparison of the Class Numbers arrived at by different schemes of classification. The Class Number of CC consists of 34 digits. The Class Number of UDC consists of 58 digits. Thus the Class Number of UDC is longer. Therefore comparatively speaking, UDC Class Number violates the Law of Parsimony more than CC.

54 Multi-focal Award

Many Labour Awards are of a multi-focal nature. They contain many points of dispute on which decision is sought for. Such types of awards create difficulties in classification. So far no device has been evolved so that the class number may express the different points of dispute, covered by the award.

541 Example

The Calcutta gazette (19 February 1958, 310) reads "By order No 4794-1. R./IR/1OL-143/57, dated the 9th December 1957, the Government of West Bengal, in the Labour Department, referred under section 10 of the Industrial Disputes Act, 1947, the industrial dispute between Messrs Indian Hume Pipe Company Ltd., P.O. Barakar, district Burdwan, and their workmen represented by the Barakar Hume Pipe Workers' Union, P.O. Barakar, district Burdwan, regarding the matters specified in the schedule to the Third industrial Tribunal, constituted under section 7A of the Industrial Disputes Act 1947, by notification No. 808 I.R./IR/3A-2/57, dated the 11th March 1957, for adjudication.

The matters of dispute as stated in the schedule to this order of reference are as follows:

1 Categorisation of workmen and fixation of pay

2 Increment in basic wages

3 Housing and housing allowance

4 Festival holidays

5 If closure was justified, what relief the workmen are entitled to?

6 If discharge was justified; what relief, if any are the workmen entitled to?

7 Whether suspension was justified; what relief are the workmen entitled to?

In this award reference to various points of dispute is made. The decisions on all these points are mingled. They cannot be separated. The whole award is one entity. But the thought-contents contained in the award are multi-focal. A Class Number cannot express all these ideas. The Class Number can represent only the award on the dominant point of dispute. The thought-contents of the award analysed in the idea plane gives the following as basic isolates.

1 Wage　2 Allowance　3 Holiday
4 Closure　5 Discharge　6 Suspension.

As there is no device by which the Class Number can express all these ideas, the only way to overcome the difficulty is to give Cross Reference Entries (5).

6 CATALOGUING

After classifying, the next process is to render the material in entries according to a standard code of cataloguing. In this paper, CCC is used. Cataloguing of awards is somewhat ticklish. Its presentation is in such a form that it creates confusion about the various sections of the Main Entry Card.

601 Example 1

The Calcutta gazette (11 December 1958, 4043) reads

"In the matter of an industrial dispute existing between Bandam and Bloomfield Tea Estates, Darjeeling, managing Agents: Messrs Geonka and Co. and their workmen employed in these two estates represented by the Darjeeling District Chia Kaman Mazdoor Union, Darjeeling, and the Darjeeling Chiya Kawan Shramik Sangha, Darjeeling, (case No. VIII-204/56)/Before the Fourth Industrial Tribunal, West Bengal./ Present/Shri M.N. Gan, Judge, Fourth Industrial Tribunal/for the Union: Shri D. Chaudhury and Shri P. Pathak/ For the Sangha: None/For the Company : Shri K.P. Mukerjee."

602 Example 2

The Labour law journal (December 1958, 676) reads as "In the High Court of Judicature at Allahabad/ (Special appeal No. 197 of 1956, dated 28 August 1958) Present/Shri Mootham, Chief Justice/Justice Shri R. Dayal/Between/ Regional Provident Fund Commissioner and Great Eastern Electroplaters, Ltd."

61 Main Entry

For documentation work, the Call Number Entry is the Main Entry. Because, the approach of the research worker is through subject. The leading section of the entry gives the class number of the material documented. Class Index Entries and other added entries are derived from the Main Entry, (6). It has been found from the experience in the Ministry of Labour and Employment Library that the approach of readers to the material is through a subject index. This should be as comprehensive as possible. Approach by title does not find much favour with the readers.

611 Example 1

For the first example in 601 the main entry card will be as follows:

Class Number	X9(J451):935952: (Z275, 7, 75)y7 J8
	WEST BENGAL, INDUSTRIAL TRIBUNAL (4)
Title	Pandam and Bloomfield Tea Estates, Darjeeling vs Workmen.
Location	(Calcutta gazette, part 1, 11-12-1958, 4043—)

6111 Heading Section

The rule 235 of CCC provides "(If ..... two or more Courts of Law of the same Government have similar names, the Individualising Element for resolving the Homonym is to be in sequence of preference, a term denoting either

1 The Area of Jurisdiction; or

2 The Headquarters; or

3 Any other necessary and sufficient attribute"

According to category 3, the Individualising Element in example 601, is the number of the Industrial Tribunal viz 4. There have been more than one Industrial Tribunal in West Bengal. These can be individualised by their number as shown in 611. By this method, the awards of all the Industrial Tribunals will be brought together in the alphebetical part of the catalogue.

6112 Title Section

In example 601, there are many puffs in the title. All these need not be included in the title-section of the entry. There are two parties in the dispute, the company and the workmen. Therefore, the relevant information to be included in the title-section is only "Pandam and Bloomfield Tea Estates, Darjeeling vs Workmen".

6113 Location Section

The award is published in the host document — Calcutta gazette. To facilitate reference, the location section should disclose the number, date or month, and the relevant pages of the host document.

612 Example 2

For the second example, the main entry card will be as follows:

Class Number	X9(D66):9582: (Z252, 7, 7)y7 J8
Author	UTTAR PRADESH, HIGH COURT OF JUDICATURE, (Allahabad).
Title	Great Eastern Electroplaters, Ltd., vs Regional Provident Fund Commissioner.
Location	(Labour law journal, December 1958, 676-79).

6121 Heading Section

According to rule 232 of CCC, if the Corporate Body is an Organ of a Government, a multiple Corporate Heading is to be used. According to rule 234, Allahabad High Court of Judicature is a judicial organ of Uttar Pradesh Government. Therefore according to rule 231 the first heading will be Uttar Pradesh and not Allahabad, though the High Court is popularly known as Allahabad High Court. This High Court has benches in Allahabad as well as in Lucknow. Allahabad has therefore to be used as an Individualising Element as provided in rule 235.

6122 Title Section

The title section of the Main Entry Card has been rendered according to the analogy of 6112.

6123 Location Section

The location section of the Main Entry Card is rendered according to the analogy of 6113.

62 Alphabetical Part

In the alphabetical part, we have to provide for different approaches to labour awards, likely to be made by research workers. Experience shows the following as the likely approaches of readers.

1 Problem Approach: What are the awards and the decisions on a specific problem, such as bonus, provident fund, strike, etc. This will be taken care of by Class Index Entry.

2 Industry Approach: What are the awards and the decisions on a specific problem in a specific industry — such as textiles, iron and steel, rubber, sugar, plantation, etc. This also will be taken care of by Class Index Entry.

3 Court Approach: What are the awards and the decisions on a specific problem in a specific industry by various courts -- such as the Labour Courts and the Industrial Tribunals of a State, the National Tribunals, the High Courts, and the Supreme Courts. This will be taken care of by Book Index Entry; and

4 Case Approach: What are the contents of an award in a dispute between a particular concern and its employees -- such as Pandam and Bloomfield Tea Estates, Darjeeling vs Workmen, and Great Eastern Electroplaters, Ltd., vs Regional Provident Fund Commissioner. This also should be taken care of by Book Index Entry.

621 Problem Approach

To satisfy the problem approach, there should be a Class Index Entry with each of the problem as main heading. The Facet Analysis (7) of CC taken along with the Chain Procedure (8) of CCC take care of this kind of class index entries. For example the document in section 611 will get the followings Class Index Entries:

Bonus = X:935952
↓
Incentive plan = X:935
↓
Wage = X:93
↓
Personnel management (Labour problems) = X:9
↓
Economics = X

622 Industry Approach

This appraoach is also satisfied in the same way as problem approach. For example, the document in section 611 will get the following as Class Index Entries:

Tea plantation industry = X9(J451)
↓
Agriculture industry = X9(J)
↓
Industrial Economics = X9
↓
Economics = X

623 Court Approach

Court approach gives no difficulty. Because the Court is the corporate author of the award. The rule 531 of CCC takes care of the Book Index entry. For example, the document catalogued in section 611 will get the following as Book Index Entry. West Bengal, Industrial Tribunal (4).

624 Case Approach

Case approach does give some difficulty. Because CCC does not provide any specific rule. Cases generally referred to form the title section of the Main Entry Card. But the sub-section 2 of rule 531 of CCC can be interpreted to suit our purpose. Therefore 22 of rule 531 of CCC will take care of the case approach. For example, the document catalogued in section 611 will get the following as Book Index Entry.

> Pandam and Bloomfield Tea Estates, Darjeeling Vs Workmen.

7 DOCUMENTATION LIST

71 Index Number

We should next consider the means of reference from alphabetical part to the classified part in a documentation list: There are two methods of doing this. One is to use the class number for directing the reader from the alphabetical part to the classified part. Here is an example,

Bonus. Tea industry X9(J451):935952

By this method a reader will take more time to arrive at the correct place in the classified portion. Another method is to serially number the entries in a documentation list and then use the serial number for directing the reader from the alphabetical part to the classified part. This way, the reader is saved from all the intricacies of class number and its ordinal value. In the two examples given below:

Bonus. Tea industry see X9(J451):935952

Bonus. Tea industry see 4

it is more difficult for a reader to locate the entry in the classified part by means of the class number X9(J451):935952 whereas he can easily locate the entry by means of the entry number 4.

72 Featuring

Featuring provides class headings in natural language in modulated steps and helps a user to find out the material on the minute possible division in the classified sequence. At first, featuring of awards may look problematic. But the Chain Procedure of CCC helps to overcome the problem. The feature headings, going along with the main entry of the example of 51 will be the following:

=X Economics
↓
=X9 Industry
↓
=X9(M71) Cotton textile
↓
=X9(M71);9(M3) Canteen
↓
=X9(M71), 9(M3):9 Personnel management
↓
=X9 (M71), 9(M3):93 Wage
↓
=X9(M71), 9(M3):935 Incentive plan
↓
=X9(M71), 9(M3):935952 Bonus
↓
=X9(M71), 9(M3):935952:(Z231, 7, 75) Award
↓
=X9(M71), 9(M3):935952:(Z231, 7, 75)y7 Case study

All these 10 feature headings will not appear consecutively in a large documentation list. For, there may be documents co-extensive with each of the above class numbers. In that case, their main entries will be interpolated just below their respective class numbers. In a short documentation list, there may not be documents under some of these class numbers. It is a moot point whether even then a chained set of consecutive feature headings should be provided or whether some of the upper links might be omitted. By experience it is found that the readers and those doing reference service find the full quota of feature headings useful.

73 Abstracting

Many may not agree about the utility of abstracting the labour awards and decisions of the Labour Courts, the Labour Tribunals, the National Tribunals, the High Courts, and the Supreme Court. But I feel a precise abstract is helpful, even though class numbers and feature headings indicate the thought-content. But there are instances where a class Number does not reveal all aspects of a subject dealt with. Let us consider the example whose class number is wroked out in 51. The class number is no doubt co-extensive. The feature headings will indicate the full meaning of the Class Number. But the essence of the document is the actual terms of award and the legal arguments leading to the award. These two factors cannot be brought out by the class number. It is only the abstract that can bring them out. If the class number is not expressive and co-extensive as the CC Number is, the abstract should also bring out the various facets brought out by the CC Number. It goes without saying that if the documentation list is not of the classified kind but only of the alphabetical kind, the abstract will have even to be longer. But, in a classified list using an expressive and co-extensive class number, such as CC Number, the abstract will be such shorter.

74 Production

741 Production Method

We may next consider the physical method of the production of the documentation list. It may be printed, cyclostyled, or typed. The choice will depend on the number of copies needed for circulation, the conventional or the non-conventional methods of printing available, and considerations of economy. In our present condition, cyclostyling appears to be the most suitable.

742 Periodicity

The periodicity of the documentation list will depend on the number of entries. Perhaps, for 50 entries, in the main part, a separate issue of documentation list may be worthwhile. If the number of entries normally accumulating in a week reaches 50 or above, the list may be a weekly. Otherwise, it may be a monthly.

8 PROBLEMS

In the documentation work of labour awards, we were confronted with various problems. Some of the problems are still unsolved. They require further investigation. They are as follows:-

1. A set of guiding principles has to be evolved for selection of articles on labour awards for inclusion in documentation lists. It is not necessary to include all articles on decision and awards. The types of decisions and awards to be included require further examination. It is felt that articles dealing with economic aspects, rights of workers as a group and interpretation of important clauses of acts may be included in documentation lists.

2. Classification of labour award involves various levels, rounds and phases. The sequence of levels and their isolates have to be worked out.

3. The labour awards often contain many points of disputes on which decisions are sought. This creates a problem in classification. It is not possible to bring out the different points of dispute covered by the award in a class number. This problem requires further investigation.

4. Apart from Industrial Disputes Act 1957, cases are now referred under other Labour Acts also, such as Workmen's Compensation Act 1923, Employees State Insurance Act 1948, Factory Act 1948, Minimum Wages Act 1948, Employees Provident Fund Act 1952, Mines Act 1952. There is need for providing distinct class numbers for awards and decisions under the different Acts.

5. The alphabetical part of a catalogue has to meet all the possible approaches of readers in connection with labour awards. The possible approaches enumerated are the problem approach, the industry approach, the court approach, and the case approach. There is already provision in the CCC for meeting the first three approaches. Some additional rules are required in CCC for meeting the case approach.

6. Documentation list requires adequate feature headings to enable a user to find out the materials on a subject. Chain procedure helps in the construction of feature headings. It is a moot point whether a set of consecutive feature headings should be provided or whether some of the upper links might be omitted.

7. It is only by providing abstracts in a documentation list, that it would be possible to bring out the essence of an award. An abstract should cover the actual terms of award and the legal arguments leading to it. The Indian Standards Institution has published a standard for abstracting. Some additional guiding principles, specially applicable to labour awards have to be worked out.

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Paper B

INTERNATIONAL CATALOGUE CODE

S R RANGANATHAN

Justifies the attempt at a Standard Catalogue Code. Analyses the problems regarding standardisation at nine different levels. Sorts out the problems into those amenable to International Catalogue Code, National Catalogue Codes, and Local Catalogue Codes respectively. Shows incidentally the possibility of bye-passing many of the problems by promoting an International Standard for the Supplement to Author Statement, on the back of the title page and for a few other points. Makes an appeal for international effort to continue making closer and closer approximation, until an agreed International Catalogue Code is reached.

0 INTRODUCTION

A Foundation in charge of an able, experienced and far-seeing librarian is providing facilities for an International Conference on Cataloguing. This is a matter for gratification. This should prove a good first step towards an International Catalogue Code.

01 Zagreb Meeting

This idea was first initiated by Unesco in 1954. It was discussed for the first time at the Ifla meeting at Zagreb in September 1954. The discussion first tended to be nebulous. At the time, Dr Bourgeois, the President of the Ifla, turned to me for some suggestion. I analysed the problems for discussion. I also arranged them in a sequence of priority. The problem of Corporate Authorship was given the first place. A Committee was suggested for the pursuit of the problem. It was agreed that every School of Cataloguing should be represented on that Committee. The distinctive contribution of the Indian School was admitted. But due to causes, which should not have been there, this School was not officially represented.

02 Brussels Meeting

This Committee met in Brussels in September 1955. I got a paper published on the problem. Libri released the pre-prints of this paper in time for the Brussels Meeting. Mr. Francis, the Chairman, was kind enough to invite me to the meeting. Mr Chaplin, the Secretary, and myself had a detailed discussion of the problem. A critique of the draft report was published in the Annals of library science 3, 1955, 112-116.

03 1961 Conference and Preliminary Meeting in 1959

With the kind offer of help by the Council of Library Resources with Dr Verner Clapp as Chairman, an International Conference on Cataloguing will be held in 1961. To prepare the work for this Conference, a Meeting of representatives of the various Schools of Thought in Cataloguing will be held in July 1959. This is the immediate stimulating cause for this paper.

1 THE PROBLEM IN GENERAL TERMS

11 Impersonal Work

Library catalogue is a tool. Its making can be impersonal. Whoever the cataloguer, the catalogue should be the same. Generally speaking, whoever the user of the catalogue, the catalogue should be the same. The catalogue can, therefore, be centrally produced. Mass-production in one centre is possible. This will reduce the cost of cataloguing to a considerable extent.

12 Catalogue vs Main Entry

But the book collection in one library will be different from that in another. Therefore, the mass-production of the whole catalogue of all the libraries is not possible. The entity amenable to mass-production is only the entry for a book. Let us first fix our attention on the main entry. The main entry of each book can be centrally established. Copies of that can be centrally produced. They can be supplied to any library on order. This implies the production of the main entry of each book as an independent document. In other words, the centre will produce main entry cards for supply.

13 No Storage of Copies

For this purpose, the centre used to make copies in anticipation and store them. This created storage problems. Again, the number of copies of the main entry card of a book, likely to be ordered by libraries, could not be determined at the time of its production. It had to depend on conjecture. And conjecture often goes wrong. Some main cards were soon exhausted. Other main cards would not sell. Modern technology of the production of copies of a document has bye-passed both these difficulties. The master-copy can now be kept in stencil or any other equivalent form. And copies can be made of it, as and when required, in the exact measure of the order. This factor reduces the cost of cataloguing still further.

14 Hurdles in the Way

But there are many hurdles in the way of adopting this rational realisation of economy. The first hurdle is traditional. The encrustation of tradition obstructs the entering of the light of reason in all spheres. Therefore, as in all other spheres, this encrustation should be broken. It has to be broken by the constant propagation of the new idea by the forward-moving members of the library profession among the slow-moving ones. The second hurdle comes from the spirit of individualism or liberalism, as it used to be called in the nineteenth century. In 1948, I was addressing the librarians of North of England. I stressed the economy of central cataloguing. One of the older members of the audience invoked John Morley, Leslie Stephen, and other lights of liberalism. He concluded, "We in the North of England have faith in liberalism. We are wedded to it. We will not surrender our freedom in cataloguing to any central agency". This is typical of the false application of liberalism, freedom, and individualism. We do not get an adequate return by applying it to all tools of universal use. We do not apply it to the making of bolts and nuts, of cyles, or cars, or of cloth, or even of bread. We agree to buy them from a mass-production centre. By doing so, we do not surrender our so-called freedom. So it must be with catalogue cards.

15 Catalogue Code

A true hurdle is the Catalogue Code. Use of different Catalogue Codes by different libraries would make centralised cataloguing impossible. All the libraries, wishing to draw benefit from the economy of centralised cataloguing, should agree to adopt a Standard Catalogue Code. In every other sphere — in the sphere of most commodities and services — accepting of an agreed standard is fast becoming the rule. National Standards Institutions are promoting the adoption of common standards in country after country. The promotion of one agreed Standard Catalogue Code should be relatively easy. For, the dominant and the largest group of the consumers and producers of library catalogue lie in the public sector.

16 Standardisation and Originality

The adoption of a single agreed Standard Catalogue Code eliminate variety only along the plane at right angles to the time-axis. It implies merely the adoption of a single standard code at any one period in a country. It does not deny variation along the time-axis. It does not deny the improvement of the Standard Catalogue Code from time to time. It does not freeze the standard for ever. The incentive for improving a catalogue code is generated in the reader-reference-librarian-context. This context is never-dying. It is ever changing. Sooner or later, this change will indicate improvement in the Standard Catalogue Code. And the improvement can be made. And it will be made. Thus, adoption of a Standard Catalogue Code will not kill original or fresh thinking. It will not wipe out the opportunity or the necessity for rethinking in Cataloguing.

17 International Plane

Great difficulty is experienced in the cataloguing of foreign books. This difficulty is due to various causes. All the causes of tradition, individualism and resistance to standardisation operate here. In addition, national prestige — the form taken by individualism in international relation — puts its own hurdle. The recognition and treatment of corporate authorship, the resolution of conflict in authorship, the resolution of homonyms, and the treatment of names of collaborators, editions, and notes, figure in this class of hurdles. This hurdle too should be removed along the lines of mutual persuasion and promotion. In the meeting of Ifla at Zagreb in 1954. I was delighted to find our German Colleagues agreeing to consider the acceptance of corporate authorship. There is a fifth hurdle. It is the cultural difference among the human groups. This cultural difference is intimately woven into the structure of name-of-person, the number of words in it, the relative largeness of the groups of words from which each word in name-of-person is drawn, the sequence of the words in name-of-person, the presence or absence of removable auxiliaries and puffs in name-of-person, and the presence or absence of irremovable auxiliaries and puffs in name-of-person. Cataloguers can not dissolve these differences. This is a real insuperable hurdle. There is a sixth hurdle. It is placed by the differences in the different languages — their morphology, syntax, script, punctuation marks etc. This too is a real insuperable hurdle.

18 Codes in Different Planes

These real insuperable hurdles make a complete and detailed International Catalogue Code impracticable, if not impossible. Still, this does not mean that the benefit of centralised cataloguing can not be drawn by one nation or cultural or linguistic group from the others. The organisation, necessary and sufficient, to draw such help has been described in my Heading and canons. It has been shown to reduce the cost of cataloguing of foreign books by 79% . Centralised cataloguing has also been shown to reduce the cost of cataloguing home-books by 79% . The purpose of this paper is to enumerate the disturbing problems of cataloguing in different levels and to indicate:-

1 Those admitting of being met by an agreed International Catalogue Code;

2 Those admitting of being met by agreed National or Regional Catalogue Codes;

3 Those admitting of linking up the International Catalogue Code and the National or Regional Catalogue Codes;

4 Those admitting of being left to a supplementary Local Catalogue Code, in order to satisfy the Principle of Local Variation; and

5 Those that need further research into the substance, apart from give and take among the Schools of Cataloguing Thought.

2 PROBLEMS FOR CONSIDERATION BY THE CONFERENCE

The field for discussion at the 1961 International Conference on Cataloguing is being itemised in greater detail in this section. But the listing of the items in detail is necessary but not sufficient for the usefulness of the conference. For, experience has repeatedly shown that many a conference proves ineffective on account of considerable refraction in communication between the participants. The reason for distraction arises in the idea plane as well as in the verbal plane.

21 Idea Plane

The very object of a conference is to lay bare the differences in the idea plane precisely and sharply. This laying bare enables the participants to see the differences in all their nakedness. After that it leads to a rapid agreement on trivial or non-essential points. Then the substance in the difference can be concentrated upon. This will increase the chance to reduce the difference gradually by discussion and mutual accommodation. In this way, the best possible return can be got on the investment of money, time and man-power made in organising and conducting the conference.

22 Verbal Plane

To do this work efficiently in the idea plane, every possible step should be taken to eliminate all the confusing cloud emanating from the verbal plane. In the 1955 Meeting at Brussels, the cloud often threatened to hide the issues. Though there were only a dozen participants, the communication failed quite often because of a "babel of terminology" — and not babel of tongues as usual. It requires considerable discipline to use the terms precisely, without synonyms. The difficulty of looking squarely at the face of naked facts tempts one to seek refuge in rhetoric and verbal camaflouge. Even righteous indignation is simulated when the fault due to carelessness in the verbal plane is pointed out. The use of the term "quibbling" to those who insist on precise and unequivocal technical terminology, by those who play with words listlessly, and are in fact quibbling in their innate evasion of the naked ideas involved. This difficulty arises even in one's own self-communication. It is the rock on which conferences break. I can understand its breaking in political conferences. For there, the rock of verbal looseness and inconsistency is deliberately sought to hide the cleavage in the idea plane already created by passion and divided loyalty to one's party, or nation, or combine of nations. On the other hand, in a scientific conference, there is no need to be swayed by emotion of any sort, not even prestige. The aim is declared to be to get at scientific truth, to get at what will lead to maximum of helpfulness in doing a service and in understanding the problem in its pristine form.

23 Technical Terminology

From this point of view, a major work at the 1959 Preparatory Meeting should be to settle the technical terminology to be used as the medium for discussion at the 1961 conference. This terminology should be settled down even now. For, it takes a long time certainly at least two years — to become so familiar with scientific terminology as to handle it, use it and understand it — involunterily without any conscious effort, that is by reflex action.

24 Natural Language

Terminology has to use a natural language as a meta-language. This calls for prompt action. After the terminology is established with any one natural language as meta-language — and that is all the 1959 Meeting can do — it should be reproduced in good time with the other natural languages as meta-languages. India had been devoting attention to this important preliminary work in the verbal plane since 1953. After many meetings, the Documentation Committee of the Indian Standards Institution has established a Standard Terminology of Cataloguing Terms. It has been published as a document of the Indian Standards Institution. It will also be found in the "Part 1 Terminology" of CCC. If no other standard Terminology has yet been established with equal thoroughness and organic quality with English as the Meta-language, this Standard Terminology may be used as a working Paper by the 1959

Preparatory Meeting and improved upon whenever found necessary. There is no question of national priority or prestige involved in this. To make precise the draft enumeration of the problems for the 1961 Conference, to be settled at the 1959 Preparatory Meeting, the terminology of CCC is used. The reference to the section of CCC containing the definition of each technical term is given.

25 Normative Principles

Another necessary preliminary to enable the conference to arrive unerringly at desired result and to avoid any inconsistency in the results, is to agree upon the Normative Principles to be used as the solid bed-rock. These normative principles in the field of Cataloguing should be the special implication of the fundamental laws of Library Science within the boundary conditions laid by social requirements on the one side and the requirements of cataloguing itself on the other. These normative principles are only a few. This has been expound in Part 0 of CCC. If there is no other set up of normative principles available, this can be used as the working paper at the 1959 Preliminary Meeting. They may be amended and improved upon as found fit.

26 The Issues for 1961 Conference

With the above background, some of the major issues that deserve consideration at 1961 conference are enumerated below. They are found in nine different levels of work. Therefore, the issues are thrown into groups under each one of the nine levels.

Level 0: Main Entry and its Source

01 Choice of the Title-Page, as the source for the Elements in Main Entry, in case of two or more title-pages.

02 Source for the Elements of Main Entry, in the absence of title-page.

03 Types of Catalogue; Classified Catalogue and Dictionary Catalogue in particular (for definition, see Sections of 1581 and 15D1 of CCC).

04 Essential difference between

1 Full Main Entry for National, Near-National, and other kinds of Dormitory Library, expected to grow indefinitely in size, with little weeding out; and

2 Brief Main Entry for Service-Library with a ceiling to the size of its collection and a frequent weed-out of books of out-moded thought.

05 Sections in the Main Entry and their sequence in the four essential types of it arising out of a combination of 03 and 04.

06 The diverse elements to be included in each of the successive sections of the Main Entry of each of the four essential types of Main Entry mentioned in 05.

07 The source for each of the elements mentioned in 06. The Canon of Ascertainability including the cases of deviation from it. (see Sections 021 to 0212, 1154 and 2416 of CCC).

08 The message of the Canon of Ascertainability to the standard for the title-page, the back of the title-page and their over-flow pages in a book. The Standards established by the Indian Standards Institution in 1956 and now under consideration by ISO/TC 46, as a draft International Standard.

Level 1: Heading of Main Entry

11 Definition of Author, Collaborator and Sponsor of a Work. (see Sections 123 to 1291 of CCC).

12 A standard prescription for the resolution of the conflict in the Choice of Author in respect of:-

1 Person vs Person;
2 Person vs Corporate Body;
3 Corporate Body vs Corporate Body;
4 Governmental Organ vs Institution;
5 Institutional Organ vs Independent Institution;
6 Government or Institution vs Conference;
7 Two or more Parent Bodies as in the case of a Delegation of a Government or Institution to a Conference; and
8 Other kinds of Refractory Cases, either by enumeration as in the rules of Chapter 14 of CCC, or by some other method.

13 Choice of Entry Element in Heading, when both Pseudonym and Real Name of Author occur in the Title-Page.

14 Choice of Entry Word in a Multi-worded Pseudonym or Initionym in Heading.

15 When only Pseudonym or Real Name of Author occurs in the Title-page, but the Author is otherwise known, the inclusion of the other as a Special Secondary Element in the Heading.

16 Choice of Entry-Word in Multi-worded Entry Element in Name-of-Corporate-Body or its Organ in Heading or Sub-Heading.

17 Choice of Entry Word in the Title of a book, used as Heading, having at its beginning auxiliary words, puffs, adjectives, or words less dominant or significant than later words.

Level 2: Choice of Elements for Heading

21 Choice of Entry Element in Name-of-Person, used as Heading.

22 Choice of the Secondary Element(s) needed to resolve Homonym in a Heading consisting of a Name-of-Person, with special reference to:-

1 Choice in anticipation of future Honoym; and
2 Choice after actual appearance of Homonym;

in the case of Full Main Entry and Brief Main Entry respectively.

23 Choice of Entry-Word in Multi-worded Entry Element in Name-of-person in a Heading, in the case of the book not implementing the standard prescribed for the Supplement to Author-Statement (see Section 1323 of CCC).

24 Aid to the Choice mentioned in 23, either by enumeration as in section 18 of CCC or by other means.

25 Choice of Secondary Element(s) needed to resolve homonym in a Heading consisting of a Name of Geographical Entity, with special reference to:-

1 Choice in anticipation of future Homonym; and
2 Choice after actual appearance of Homonym;

in the case of Full Main Entry and Brief Main Entry respectively.

26 Choice of Entry Element in Name-of-Corporate-Body, used as Heading or Sub-heading.

27 Choice of Secondary Element(s) to resolve Homonym in a Heading or a Sub-Heading, consisting of the name of an Institution or a Conference, or an Organ of any Corporate Body including a Government, with special reference to:-

1 Choice in anticipation of future Homonym; and
2 Choice after actual appearance of Homonym

in the case of Full Main Entry and Brief Main Entry respectively.

28 Choice of the Secondary Element(s) in a Heading consisting of the Title of a Book, with special reference to:-

1 Choice in anticipation of future Homonym; and
2 Choice after actual appearance of Homonym;

in the case of Full Main Entry and Brief Main Entry respectively.

Level 3: Rendering of Entry Element

31 Rendering the Entry Element in Heading or Sub-Heading in its Nominative Case-Form, though the title-page uses some other case-form.

32 Treatment of adjective(s) at the beginning of a word-group used as proper noun and as Entry Element in Heading or Sub-Heading.

33 Treatment of Traditional Name of Personal or Corporate Body or Book, different from the name given on the title page with special reference to:-

1 Choice as preferred heading in violation of the Canon of Ascertainability; and as an alternative
2 Choice as heading for Cross Reference Index Entry only.

34 Choice between International Name, Local Name or Name in the Favoured Language of the library (for definition see

Section 051 of CCC) of a Geographical area for use in Heading.

Level 4: Title Section

41 Rendering of the title in Full Main Entry and Brief Main Entry respectively, with special reference to:-

1 Puff;
2 Secondary Title;
3 Alternative Title; and
4 Indication of omission of words from the Title.

42 Choice of Name(s) of Collaborator(s) for mention in the Title Section in Full Main Entry and Brief Main Entry respectively.

43 The rendering of the Name of a Collaborator in the Title Section in Full Main Entry and Brief Main Entry respectively.

44 The use and position of the words indicating the role of a collaborator.

45 The relative position in the Title Section of the Main Entry of the mention of the Edition and of the Collaborator, in case the latter is not common to all Editions.

46 Mention of the Edition of the original book in the case of the translation, adaptation, or any other rendering.

47 Omission from the Title Section in Full Main Entry and Brief Main Entry respectively, of the elements in the title-page contributing to the heading and the obligation or otherwise to indicate their omission.

48 The elements occurring in the title-page but to be omitted from the Full Main Entry and Brief Main Entry respectively, without the obligation to indicate their omission.

Level 5: Note Section of Main Entry

50 Kinds of notes to be added in Full Main Entry and Brief Main Entry respectively.

51 Rendering of Series Note (for definition, see Section 1451 of CCC) with special reference to the mention and the position for mention of the name of the Sponsor.

52 Rendering of Series Note in the case of Multiplicity of Series, with special reference to their independence and interdependence respectively.

53 Rendering of Pseudo Series Note (for definition, (see Sections 1352 to 1354 of CCC).

54 Rendering of Thesis Note.

54 Rendering of related Book Note such as those relating to Extract, Original of Extract, Change of Author, Change of Title, Associated Book (for definition, see Sections 1350, 1355 to 1357 of CCC).

Level 6: Specific Added Entry

61 Choice of specific Added Entry and its derivation from Main Entry (See Section 1543 of CCC).

62 Rendering of Second Section of each kind of Specific Added Entry, in case the Unit Card System is not used (for definition, see Section 0343 of CCC).

Level 7: Subject Heading

71 Choice of Subject Heading for Class Index Entry in Classified Catalogue and Subject Entry in Dictionary Catalogue — Specific Subject Entry as well as see also Subject Entry — (for definiton, see Sections 1551 to 154, 1586, 15D41 to 15D43 if CCC).

72 Rendering of Subject Heading.

73 Consolidation of General Subject Entries (for definition, see Sections 1554 and 1536 of CCC).

Level 8: Cross Reference Index Entry

81 Choice of Heading for Cross Reference Index Entry arising out of Specific Added Entry, because only one of the claiments with the possible rights to form its heading, has been preferred. This denies the right to the other claimants. These other claimants may be:-

1 Alternative name of the name used in the Heading of Specific Entry;

2 Variant-Form of word occurring in the Heading of Specific Entry;

3 Pseudonym or Real Name as the case may be, treated as Secondary Element in the Heading of Specific Entry;

4 Name(s) of Editor(s) of Series; and

5 Generic Name of familiaryly sought kind

1 Institution such as Botanical Garden, College, Conference, Laboratory, Library, Museum, School, University Zoological Garden; or

2 Kind of Publication such as periodical, any form of serial such as Calendar and Thesis (see Sections 1532 and 4302 of CCC).

Level 91: Non Simple Book

911 Additional Rules of Multi-Volumed Books (for definition, see Section 13331 of CCC).

912 Additional Rules for Ordinary Composite Book (for definition, see Sections 1334 and 13341 of CCC).

913 Additional Rules of Artificial Composite Book (for definition, see Sections 1334, 13342 of CCC).

3 INTERNATIONAL LEVEL

The following problems will admit of being ultimately regulated by an International Catalogue Code, irrespective of the language of the book or its period of production or the cultural group of its author.

1 All the problems of level Zero;
2 The problems 25 to 28 of level 2;
3 The problem 34 of level 3;
4 The problems 41, 42, 45 to 48 of level 4;
5 All the problems of levels 5 and 6;
6 The problems 71, 72 of level 7;
7 Categories 3 and 4 of problem 81 of level 8; and
8 All the problems of level 91.

4 NATIONAL LEVEL

The following problems require intimate knowledge of the country, the cultural group and the language to which the author belongs:-

1 The problems 21 to 24 of level 2;
2 The problems 31 to 33 of level 3;
3 The problems 43, 44 of level 4;
4 The problem 72 of level 7; and
5 Categories 1, 2 and 5 of problem 81 of level 8.

It is desirable that each linguistic group or national group, as the case may be, should arrive at its Linguistic or National Catalogue Code in respect of the problems mentioned above. They mostly belong to the problem of rendering names.

5 STYLE OF WRITING

Then comes the style of writing or printing. This includes:-

1 Formation of section;
2 Use of Punctuation Marks;
3 Use of Capitals; and
4 Variation of Type-Face, to secure the best Featuring-Effect.

These will depend on the linguistic practices and the script of the cultural group. This again suggests that it is desirable for each linguistic group to include these points in its Linguistic Catalogue Code.

6 ARTIFICIAL LANGUAGE

However, whatever be the language to which the words in a Heading may belong, it has been shown (see Library catalogue : Fundamentals and procedure, 1950) that the totality of the words in the headings of a catalogue form an artificial language. For, the semantic status of each word in a heading and the semantic content of the heading are quite different from the one prescribed by the syntax of a natural language. It is, therefore, possible to prescribe punctuation marks and use of capitals for the Heading by an independent set of rules. Further , the sequence of the words also is determined by an independent set of rules. Therefore, the rules bearing on these two problems can be prescribed by the International Code itself.

7 LOCAL CATALOGUE CODES

Lastly comes the Supplementary Local Catalogue Code of a Service-Library. It should prescribe the simplification of some rules and perhaps give instructions for sought headings for subject entries and cross reference index entries, more precisely than the International or National or Linguistic Code.

Paper C

PRODUCTION AND USE OF MICROCOPIES

NEED FOR STANDARD PRACTICE

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Examines the need for standard practice regarding processing, handling, transit, storage and use of microfilm. Deals with some aspects of standardization pertaining to physical characteristics, and optical or image characteristics. Shows some precautions to be taken for maintaining quality in the production and use of microfilm.

0 INTRODUCTION

The rapid pace of technological advance in the 20th century has created the need for provision of adequate documentation services to help keep workers in science and industry abreast of developments in their fields. With the impetus given to industrial expansion, the importance of documentation services has received increasing attention from leaders in government, industry and research. Existing centres for dissemination of information are expanding. Where there were no documentation services available, international agencies like the Unesco have helped to establish documentation centres especially in the so-called underdeveloped countries. In an atmosphere of such rapid and spatially widening awakening to the indispensability of documentation services and in keeping with the international character of the 'commodity of communictaion' viz. scientific and technical information which is being created in a myriad centres throughout the world, it is undertsandable that information in one form or other gets increasingly exchanged internationally.

01 Standardization

Standardization is an important factor in industrial productivity. Adequate documentation facilities are also vital for rapid economic advancement. It follows that if standardization is followed and ensured in certain vital aspects of documentation service of documentation work and the utility of documentation services will be maximum. In other words standardization, both qualitative and quantitative, of the vehicles of documentation services and the adherence to certain standardized practices in their production will increase the productivity of documentation services, thus indirectly pushing up the productivity of the users of such documentation services in research and industry.

DIKURY

02 Microrecords

Microrecords, by virtue of their compressed size and because of the ease with which they can be handled, transported and utilized, have come to stay as the most commonly available and relatively inexpensive medium for rapid transmission of documents. Of the available forms of microrecords, the 35 mm. microfilm is the most commonly used perhaps because of the economy with which it can be produced to carry documents either utilized or collectivized and also because of the ease with which it can be produced and reproduced to a macro-form using equipment more readily available than for other media of microdocumentation. As in all cases, where a commodity produced in one centre is used in several others, a certain amount of standardization is called for in the properties of microrecords and in the manner in which they are handled during production, transport, storage and use.

1 MICROFILMS

Insdoc has received during the past few years of its existence several thousands of microfilms from various documentation centres to supplement what is produced in the centre out of documentary material available from its own and nearby sources. The countries from which Insdoc has obtained documents on microfilm include Australia, Brazil, Canada, China, Egypt, France, Germany (West), Hungary, Israel, Italy, Japan, Mexico, the Netherlands, Pakistan, Poland, South Africa, Spain, Sweden, Switzerland, the U.K., U.S.A., and U.S.S.R., besides microfilming outfits in India other than Insdoc. An attempt is made here to examine the varying qualities of the finished microfilms received from these sources.

11 Handling

Quite a few of these microfilms arriving from abroad have been found to be very roughly handled rendering them difficult to be used. An attempt to use some of them has been positively annoying while some others have been quite useless. Nothing can be more frustrating than to wait for a microfilm of a reference from a source several thousand miles abroad and finally to get it in an unusable condition after several days or weeks. The productivity of one information centre thus gets affected by an apparent carelessness in handling the microfilms in another. Suggestions for 'standard' practices in handling microfilms can at best be in the nature of recommendations of a negative nature — a listing of "Don't"s rather than of "Do"s. A wide range of defects due to aberrations in handling have been noticed. They are mentioned below in the hope more attention will be devoted to their avoidance by those concerned with the production, distribution and consumption of microfilms.

2 PHYSICAL DAMAGES

While some attention has been paid to the standardization of sizes, formats, arrangement of images etc. of microfilms and while standardisation of the optical or image characteristics are in the formative stages, not much attention seems to have been paid to physical defects and damages, their causes and their avoidance.

21 Scratches & Abrasions

Scratches and abrasions are obviously caused mechanically during some stage in exposing or processing. Some surface in relative motion with the film is not smooth enough or has some foreign matter sticking on to it; or, the processing solutions have not been properly filtered and have some suspended particles. In addition, examples have been noticed where tiny segments of emulsion have been physically torn away from the film-base presumably by the finger-nails coming into contact with the wet emulsion during processing. If the film happened to be moving (in the developing machine/tank or the drying cabinet) at the time the erring finger edged its weapon, the damage would be much worse and longer! The only way to avoid these is to ensure thorough and periodical examination of all the parts starting from the camera and ending up at the drying chamber or the reader (in which film is examined first after processing) — in fact every part through which the film moves — for possible cause of abrasion. Wet film should never be handled except by the edges. There should be no dust or smoke anywhere in the vicinity where microfilms are processed, dried or handled.

22 Fingerprints

Rough handling of the film, especially before it is dried, often shows up through that indelible evidence — fingerprints. Some fingerprints, especially those that are caused by rather greasy or grimy fingers can be nasty enough to obscure some of the fine details in the microfilm image while almost all of them will print themselves out along with the text of the document when the microfilm is enlarged. Unlike some other kinds of surface defects, fingerprints cannot be removed easily. Even dry processed film should be handled only by the edges to avoid greasy fingerprints getting impressed on the recorded images. (University Microfilms Inc. at Ann Arbor, Michigan, USA, insist on their employees using soft cotton gloves while handling microfilm after processing).

23 Fastening or Securing Devices

Some centres are quite liberal in the use of bits of adhesive tape to secure the microfilms on to a sheet of paper which is folded and put in the mailing evenople. When the tapes are removed at the time of use, the adhesive is found to be smeared on the images obliterating several characters and making the film stick to parts of a reader or enlarger. Similarly staples, pins and paper clips are indiscriminately used on the microfilms, often right through the image areas! No stationery hardware however innocuous is ordinary use, should be brought anywhere near a microfilm. Even a small tear or a tiny hole pierced through the border or non-non-image area of a film can be the source of a bigger damage affecting the image area while the film is transported to and handled at different stations.

24 Packing Problems

Some institutions who do not seem to be particular about the standard 9-inch strip are found to fold the microfilms of length of anything from one foot upward in a zig-zag fashion and push them into envelopes. By the time the microfilms arrive at their destination the beating they have taken through the post has produced clean cracks in the film, often again, right through the middle of an image of a page. Even if no crack is caused the sharp crease of the fold does not get flattened enough by the pressure glasses in the enlarger or the microfilm reader to give a sharp image at the folded portion. Even folding between frames should be avoided. The film should be cut into strips. The importance to make and send the microfilms in flat strips of standard lengths cannot be overemphasised, unless the length of the film warrants it to be sent as a roll.

241 Sharp Corners

Sometimes the sharp corners of the film-strips hurt the fingers while they are being taken out and it is possible the corners themselves can cause scratches on the surfaces of neighbouring strips. It has been noticed that the National Diet Library, Japan, sends out microfilms with the sharp corners cleanly clipped, obviously to avoid such difficulties.

25 Buckling

Instances can be cited of other types of damages in handling not falling into the above categories. Careless and rough handling can cause buckling of the films. If this occurs after processing and when the film is in a dry state the buckling stays as a sharp kink or crescent-shaped crease or a corrugation. This will cause a similarly shaped streak when a paper print is made, in addition to rendering the environs of the kink unsharp or out-of-focus when projected in an enlarger or a reader. If the kink has occurred before processing (for e.g. while loading or unloading the film magazine in the camera) when the film is in a dry state, development reveals a sharp and definite fogging on the kink. This may be either due to static electricity or more usually to the well-known fogging effect of sudden stress on sensitized material.

26 Surface Blemishes

261 Chemical Stains

Sometimes some chemical stains or white scaly deposits are found on microfilms, obviously due to want of care in processing and particularly in washing. Good thorough washing in running water at a temperature not much above the average temperature of processing, keeping the film moving through the water for at least 30 minutes must be ensured to avoid such defects.

262 Drying Marks

Often drying marks left by drops of water adhering to the film before drying, even after the film has been supposedly drained off, cause difficulties by obscuring some detail or causing a blot on the image of an enlarged print. The best way to avoid drying marks is to make regular use of a wetting agent which reduces the surface tension of water and helps it to drain away uniformly and quickly and to pass the film through a dilute solution of it after washing and before drying. Used with care and dexterity a slab or two of good quality highly absorbant synthetic sponge may be used as a gentle squeegee to remove all traces of surplus water from the film. The point is that the film when hung up for drying should not be wet but only damp. If the film is not dried in an ideal drying cabinet with infra-red lamps and a clean filtered drought of air provided by a blower or an exhaust fan, it must be ensured that the room where it is dried is dust-free and no dust-catching or lint-producing material like paper, linen, rags or cotton-wool are stored there.

3 PREVENTION OF DAMAGES DURING TRANSPORT

Many an otherwise good microfilm has to be thrown away and the concerned client made to wait longer for his reference, due to want of attention paid to packing of the microfilm before shipment.

31 Strip Form

Single strips and upto a few strips may be sent through the post, especially air mail, as long as they are inserted in a microfilm envelope and then placed within the mailing envelope. The envelopes used to contain the microfilms should be slightly larger than the dimensions of the standard strip to allow room for a little play. Microfilm strips have often got damaged while forcing them out of a too-tightly-packed envelope. If there are many strips making a thick and heavy bunch in one shipment they need better protection as, otherwise, they are likely to tear or open the envelope carrying them and fall out. A pair of 'strips' of corrugated cardboard or light fibreboard sandwiching the microfilm strips and the whole thing held together by a couple of rubber bands and then placed in a tough and stiff envelope should be adequate in such cases.

32 Roll Form

When the microfilm is sent in roll form, it may remain unspooled if only upto 25 or 30 feet long and placed in a metal, plastic or fibreboard 'pill-box', cylindrical in shape, which should, in turn, be packed in any suitable packing carton. If the film should be longer, it would be advisable to spool it in a standard film-spool made to carry 100 feet (either of metal or of the lighter plastic material like 'Tenite') in order to protect the film completely and the spool should be adequately packed in a tin can and then in a carton. Insdoc received one badly packed 'roll' of some 7 or 8 feet of microfilm recently which was thoroughly twisted, crumpled and torn in places so badly that a repeat order had to be placed with the same source for the same article. Many of the more enterprising microfilming centres, commercial and governmental, especially in the USA have been using hinged cartons of tough fibre-board with metal reinforcement in the corners carrying an imprint of a standardized form for titling, indexing and for recording other information useful in storage and handling. This practice should become more universal. As mentioned earlier the avoidance of any other foreign matter coming into contact with the microfilm, than an envelope or a clean paper wrapping over the spool, is essential.

4 PHYSICAL CHARACTERISTICS

Standards concerning the physical characteristics have been engaging the attention of authorities in several countries and there are already some national standards that have come into existence during the past decade or so in the United States, the United Kingdom, France, Belgium, Hungary, Spain etc. These pertain mostly to those defining (a) dimensional tolerances for microfilms of different widths viz. 16 mm., 35 mm., 70 mm., 105 mm. and others, (b) qualities of the base material like thickness, toughness, dimensional stability etc., (c) arrangement of successive images of the document on the microfilm with respect to their format and (e) lengths of units of microfilm strips.

The limits set to widths of the different types of microfilms by relevant standards and the qualities of the film base on which the sensitized raw stock for microfilms are manufactured are the concern of the manufacturers of raw film. There is adequate control of the quality of their products by reputed film manufacturers throughout the world and hence these need not concern the producers and users of microfilms.

41 Arrangement of Images

411 Image Sequence

Arrangement of the image sequence on the microfilm has been the subject of standardization in a few countries. But it is regrettable to note that, due to want of strict adherence to such standards even where they exist, mico - films are produced and sent out in which the sequence of the pages of the original document is not maintained. Most usually this happens when due attention is not paid to the position of the microfilming camera or its film magazine with respect to the direction of movement of the film. This results in a page sequence on the microfilm which runs thus: 2-1, 4-3, 6-5, 8-7, 10-9, etc. While this may not appreciably affect the efficient production of paper prints by enlargement, it certainly is a nuisance to have to keep the frames of the microfilm moving back and forth in its holder while reading it on a reading machine. To avoid this it should be ensured that the film moves in a direction opposite to the direction in which the pages are turned in numerical sequence for successive exposures. In some cases, especially those of Arabic or Japanese (vertical style of writing) script where pages follow from right to left the reversing of either the camera or the book through 180° is indicated.

412 Orientation of the Image

The orientation of the document with respect to the film, placing either the longest or the shortest side to fall along the length of the film depends on the extent of reduction desired or feasible and on whether a single frame (exposure) can cover a double-page as in the case of books and journals or single page as in the case of loose-leaf, especially, large size, documents. In this respect a standard can at best be in the form of a recommendation. For instance, while microfilming newspapers it should be advisable to cover one page of the paper per frame with the longer side of the paper falling along the length of the film in view of the high reduction involved. By the same token, while filming a small booklet, especially if it has large type-faced matter, it would be advisable to have the width of the pages covering the width of the film, one exposure of half a frame covering two pages, thus effecting economy of film without impairing ease of viewing. More usually for the needs of scientific documentation, technical journals and learned periodicals are filmed two pages per exposure of a full frame, the width of the film covering the length of the journal.

42 Length of Microfilms

421 Strip or Roll?

Instances are not few where even some reputable libraries and documentation centres send out microfilms in non-standard lengths, when the length of the document does not warrant the microfilm being supplied in a spool as a continuous ribbon. Of course, complete volumes and series of volumes or parts of a publication comprising several hundred pages are best supplied as spooled lengths of microfilm (of about 100 feet in length). Usless the customer desires otherwise it should be the normal practice to supply microfilms of documents of upto 200 pages in strip form. Twenty strips of film should not make an inconvenient packing for transit through the post; moreover, the location of a particular page becomes easier with a set of strips serially numbered. Further, articles in journals generally do not exceed 50 pp. in length. The quantity of microfilms interchanged internationally and the frequency of such interchange can can be safely supposed to be highest in this range of length of document.

422 The Standard Strip

Only a few countries (for e.g. France, Germany, Italy etc.) seem to be strictly adhering to the standard length of 23 cm. for a strip of 35 mm microfilm. This can accommodate 10 pages of normal book-sized matter besides one full frame to comprise the title page and index or order number. This length of film is conveniently stored in envelopes and can be transmitted through the post easily, keeping it flat. Besides, the unit of 10 pp./strip is elegant in this age when decimal systems of measurement are the vogue. INSDOC has adopted the 9-inch strip as the unit for charging for the supply of microfilms.

423 Shorter Lengths

One the other hand there appear to be quite a few administrators of microfilm producing units motivated by a compulsion to save on material. They seem to be reluctant to allow any space on their microfilms to remain blank, not even at the ends where one is expected to hold the film for inspection, reading or for making further copies! The writer had several occasions to handle (or try to handle!) tiny striplets of film varying from anything from just one inch to 4 or 5 inches.

424 Proposed Sub-Standard

It should be admitted that when individual documents are to be copied which do not comprise more than two or three pages it seems a waste to have to leave 4 or 5 exposures blank in a 6-exposure (9 inch) strip, especially when a number of such orders are to be filled. Patents are usually no longer than 3 or 4 pages, often only one. In such cases it may be advisable to Devise a standard strip (one may call it a sub-standard strip, if one wishes) of 11.5 cms. or 4.5" which should be used only in cases of documents not exceeding 4 pages. Of course it should be optional for one to stick to the 23 cm. standard even for covering a one or two page document. But if economy of material is a serious consideration no strip should be produced shorter than the proposed 4.5". Again, these should be employed only for independent short articles and not for left-over portions of a long one comprising several full-length strips. Micro-lengths of microfilms are extremely difficult to handle. Tiny strips of an inch or two cannot be pushed into and out of the film-holders in microfilm readers and enlargers and in several types of the latter the striplets promptly fall onto the condenser lens system obliging one to dismantle the enlarger to retrieve the film. Surely there are more elegant, efficient and essential systems of information retrieval!

425 Unitized Microfilms

Recent developments abroad include the frequent use of single frames of microfilms fixed to an aperature in an index card, punched cards, either of the edge-slotted type or machine-punched type. These are very useful for classifying and storing individualized information and for rapid sorting and selection. There have been numerous applications of microfilm coupled to a punched card system. Another interesting deviation has been the use of transparent acetate jackets for carrying either single frames or strips of microfilms which are unitised by a subject. Such arrangements facilitate the addition of future documentary material to keep up a cumulative record of information on a narrow specified field. For such developments needed by special applications of microfilm for documentation, it is difficult to prescribe the standard strip of nine inches or for that matter, any standard at least in the early stages of these developments.

5 IMAGE CHARACTERISTICS

51 Density and Contrast

Standards regarding optical characteristics of microdocuments are still in the preliminary stages. From the point of view of the user of microfilms and of those concerned with enlargement or positive duplication of microfilms in information processing centres, the most important aspects of quality in microfilms are the density and contrast and their uniformity within practicable limits. One has to note, here, that the optimum levels of density and contrast of an opaque reproduction are different from those of a transparent one (or one that is deciphered by transmitted light, as a photographically good negative film may not, rightly, be considered by some as being 'transparent'!). Again, even within the field of transparent microreproductions the optimum levels of density and contrast required for direct reading in a suitable magnifying device may need to be different from those required for further reproduction either by contact methods (as for microfilm positives or for duplicates on diazo film) or, more often, by enlargement as paper prints of directly readable size on opaque bases. Further, even for direct reading of microfilms the quality of the microfilm cannot but be vitiated by the characteristics of the reading device viz. the source and strength of illumination, its optical design, the brightness of its screen (if it has one), the degree of magnification etc. The degree of visual comfort of the user scanning or reading the image is a highly subjective matter capable of wide variations.

511 Optimum Values

Nevertheless, it is necessary and possible to evolve a compromise between the requirements for comfortable reading and those for trouble-free photo-duplication, of optimum levels of density and contrast. It is not so much important to define one and only quantitative norm for these two aspects as to lay the values for the acceptable minimal (threshold) and maximal (peak) values, taking into account the limitations imposed by the characteristics of commonly available reading and enlarging apparatus and the physiological aspects of eye-strain that may be involved in direct reading of poor quality microfilms. Equally important is the requirement that uniformity of these values be maintained in the microfilm produced by one centre or originating in one source: i.e. images of different pages in the same microfilm and also microfilms of different documents either in the same strip/reel or separate should be uniform in density and contrast. Indeed, the ideal state would be when any microfilm of any type of original originating from any point in the world should have the optimum density and contrast.

512 Difficulties due to Deviation

5121 Under Exposure

Under-exposure and/or under-development resulting in thin, flat negatives caused dicomfort in reading and even loss of clarity of some fine or faint detail in the image. Good, neat and elegant enlargements cannot be produced even even by the use of a high contrast grade of paper, as the background gets printed a heavy tone of grey, surface imperfections (if any) like scratches scratches, drying marks, and spots become more prominent and lack of brilliance in the print causes difficulty in reading under unfavourable lighting conditions.

5122 Over-exposure

Over-exposure and/or over-development give very dense and harsh negatives which have their own story to tell -- or if they carry a story they cannot often be told easily! The characters in the negative image get inconveniently darkened and some of the fine detail becomes blocked up and lost. Even with reading machines having the brightest screen and illumination systems the reading of the magnified image of the microfilm may be difficult and exposures needed in an enlarger to produce a satisfactory print can be unduly long.

52 Control

521 Illumination

Means of avoiding variation (control). In order to avoid wide departures from acceptable limits to the density and contrast of the microfilm care has to be taken to standardize the exposure and processing of the film. The illumination of the original document has to be uniform throughout its area and the amount of light reflected by successive pages has to be constant. The actual illumination will depend on the tint and brightness of the document photographed, and the amount and darkness of the printed/written impression. The illumination is generally adjusted by means of a rheostat or variable output transformer to match the reflectance of the document in most advanced models of microfilming machines so that the light acting on the film is always constant. This is best controlled by using a photo-electric light-flux-meter or an exposure meter to check the value of the reflected light when every book or journal is started. Often one finds within the same bound volume of a serial publication or even in some not-so-elegantly produced book that different paper stocks of varying degrees of whiteness or tints are used for different issues or portions. In such cases the light meter has to be used everytime a change in reflectance is noticed; or, better still, the meter should be regularly used after every few exposures to check the constancy of the light reflected by the document and to correct the illumination if there is an appreciable change. Output of work on microfilming may slow down by frequent reference to the light-meter for a check up during exposure, but then of what purpose is productivity that sacrifices quality? In fact productivity envelops the idea of producing the best possible product with the least expenditure of labour, time, material and space. If strict standardisation can be achieved in the field of book and periodical publications with regard to format, quality (especially reflectance) of the paper used for printing, darkness or depth of the printing ink used, and the spectral quality of the illumination, then output of microfilming machine can be uninterrupted and its productivity much higher. But as such rigorous standardisation is not practically feasible in the field of publications, one has to contend with momentary halts in operation in order to have control over the quality of microfilms. Further, quality is very important from the point of view of the user and all microfilms are produced, at least in the field of documentation service, for the ultimate purpose of providing the information content of the microfilm speedily in an easily accessible and readily usable form.

522 Processing

Exposure control is only one part of regulating the transmission qualities of the microfilm. The other and less tangible control is in processing. The type of developer used (its strength or energy depending on its ingredients and their proportion in the formula), its degree of freshness, the temperature and time of development, the degree and mode of agitation of the film are all factors that affect the density and contrast of the microfilm. The control of their variation has to be fairly strict, in order to avoid films of bad quality. It is easy to standardize on the use of one formula of developer and one brand of film, either by following the manufacturer's instructions or by adapting one's favourite developer, after trial and error tests, to the particular brand of film used. But it is not always possible to maintain or even to measure the degree of freshness or exhaustion of the developer even though instruments like the pH meter can be employed for the purpose. In continuous-processing machines a continuous or a continual replenishment of the solution is arranged manually or automatically. In small scale units lacking the luxury of a continuous-processing machine where not more than one or two hundred feet of film is processed per day, it may not be feasible to use a fresh lot of developer for every spool. But, if a replenisher is not used, the developing time can be prolonged by a suitable factor for developing every additional spool of film. The useful capacity of a given quantity of developer has always to be determined and strictly adhered to. Time, temperature and agitation have to be standardized. As far as possible, the ideal tempearture of 68°F has to be maintained; suitable cooling plants may be necessary for running cold water jackets for the processing solutions and for cold running water for rinsing and final washing of the film at the standard temperature. (This requirement may not, of course, apply where weather conditions are not tropical or even under tropical conditions, natural or simulated, special formulae are employed for rapid processing at high temperatures). The mode of agitation has to be steady and is best achieved by continuous movement of the film in the developer; in many modern documentation centres an electrically operated developing tank is used which keeps the film coiled and uncoiled back and forth between two spools. The time of development, depending on these factors has to be adjusted to allow for variations in exhaustion, temperature or agitation. Preliminary tests have to be made every time a different brand of film is employed or even when a film of the same make having different batch number is taken up for use.

53 Checking the quality

531 Image

So much for the control of the variables that affect density and contrast of the microfilm. But in addition there must be some means of checking the quality once the microfilm has been processed and got ready for despatch. The system employed for checking must be simple and convenient. The actual details and means of checking may vary but the essentials must be the relative rather than the absolute quantitative evaluation of density and contrast.

532 Fog Level

It also seems necessary to have a check on the acceptable fog level on the film. Fog can be caused by bad or prolonged storage, light leak before or during processing or dichroic fog due to prolonged development or, less frequently, due to stray discharges of static electricity or invisible radiations. While light streaks and other non-uniform fogging will usually result in microfilms that have to be discarded, uniform basal fog can be tolerated upto a certain limit. This has to be ascertained and the film checked for its fog level even when the operator has no control over the cause of such fogging. Excessive fogging results in a very flat and dull image with the characters losing their brightness on the screen of the reading machine or yielding a dull grey irksome-to-read prints. Further copies on positive film do not come out crisp and clear.

533 BaseTints

Base tints are another variable property of films over which the microfilm processor has no control. Films produced by different manufacturers have different base tints — varying from a deep pink of one through a neutral grey to a pale blue-green. While these tints create no problems by appreciably distorting the actinic values of the light transmitted through the films for producing further photo-copies, the cumulative effect of the tint and the density due to fogging (if any) seems to be different for different base tints. This means that the same amount of fog caused by the same or similar factor on two films having different base tints may result in one being acceptably good and the other unfit for further reproduction or even for direct reading.

6 AIDS TO QUALITY CONTROL

In order to maintain good quality of microfilms we need some means of controlling the quality. These can be objective and subjective devices.

61 Objective Devices

These can be mechanical aids - gadgets, instruments or gauges. One such arrangement can involve the use of a 'standard' reference strip. An absolute measurement may not be necessary as a means of routine check but at least a comparison with a "standard" strip of the optimum density and contrast has to be made. It is desirable that the viewing mechanism should be in an ideal state of uniform and optimum illumination and magnification for correct visual comparison. An ideal comparison strip can be envisaged by having 3 frames in the middle at the optimum level of density and contrast with one frame at either side of this giving the acceptable minimum and maximum values of density and contrast. The sixth exposure can be a little frame giving the details of values of the densities at the optimum and at the tolerance limits, a brief note on the processing conditions; it may also include an image of a Resolving Power Testing Chart as a guide for the fineness of detail that can be successfully reproduced on the microfilm. This comparison strip can be mounted in an acetate jacket. This should have heat-welded to it a parallel empty jacket with a flap sleeve in which the film under check can be inserted for comparison. The whole assembly can then be placed on the opal glass of a viewing box illuminated by a bark of fluorescent tubes, for comparison. The acetate jacket mounting is suggested to avoid scratching and spoilage of the comparison strip. Documentation centres in various countries can, after mutual consultation, agree upon a common standard reference strip which will be used by all of them for checking the quality of the microfilms produced and sent out by them. Where, in rare cases, absolute measurement of the density is desired some kind of a transmission densitometer (e.g. Kodak or the S.E.I type) will have to be employed. Without resorting to absolute measurements the quality can be controlled by ensuring that the tested sample does not depart from the 'norm' beyond a certain tolerable limit in its quality. Absolute measurements can be made, however, by the use of a densitometer (for measuring density and density differences as a measure of contrast), a pH meter (for measuring the degree of alkalinity of the developing solution as a measure of its state of activity or exhaustion), a light fluxmeter (for measuring the intensity of the light reflected by the document just before it is photographed) etc. In cases like that of a densitometer where the measurement is based on subjective judgement, due allowance has to be made for 'personal equation' or the error in observation or judgement that occurs to a varying degree between individuals. The element of erroneous evaluation due to personal equation can be minimized, if not avoided, by the use of a relative or a comparative means of checking quality. From this point of view, as well as from the fact that the limit of tolerance for the optimum value of density need not be very fine, the use of a comparison/reference strip mentioned earlier should adequately meet the requirements of satisfactory control of quality.

62 Subjective Devices

Subjective devices should include a 'Code of Practice' for all who handle microfilms either as technicians helping in their production and reproduction or people who make use of them. A code can be drawn up embodying most of the suggestions for maintaining good quality discussed above, and this, after circulation among various national centres of documentation and the prominent commercial producers of microfilm through the good offices of the FID, the ISO and UNESCO, can be agreed upon and followed by all. If this suggestion is taken up with the earnestness it deserves, it will be a great help forward in the rapidly developing discipline of documentation and information handling. It will be a good idea to appraoch the problem of formulation of such a code with as much seriousness as has been invested by various countries, in the codes of professional conduct in the various learned professions like medicine, law, accountancy etc.

63 Training of Personnel

Sound training of personnel employed in the producing units will also help. Training can be of a positive type viz. periodical refresher courses and technical tests of the knowledge of the employees, or of a negative type e.g. letting the technicians actually experience the difficulties in handling bad quality microfilms and in trying to reproduce further copies from them. They can be made to feel the difference better by using good specimens and thus the need for avoidance of bad quality can be brought home to them. This will help them exercise more care and vigilance which will result in improvement of their products.

7 STORAGE AND USE

The most important considerations in storage of microfilms without impairing their quality are the temperature and humidity. As for any type of processed photographic films, including cinematographic film, the requirements of a cool, dry and fire-proof place is a necessity. If the mitrofilms are produced and stored for security purposes (as a duplicate master to provide vital information in case the original records are lost or damaged in calamities, including a hot war) or for archival purposes the conditions for storage will have to be stricter. Air-conditioning, with both temperature and humidity controlled, in a damage-proof vault of steel or reinforced concrete would seem to be a must in such cases. For more common purposes, where microfilms are used only as a vehicle carrying quickly transmitted or frequently consulted information the storage conditions can be less rigorous, even though the desirability of avoiding excessive vatiations of temperature and humidity in the interests of the quality and longevity of the image on the microfilm should emphasised. Special steel cabinets have have been made and marketed (the French-made 'Flambo' is a good example) having drawers of shallow depths with metal separators which greatly facilitate storing of microfilm strips of the standard length. Envelopes carrying the film can have the title number or indexing and cataloguing information typed on them and the metal separators come in handy for classifying the microfilms according to their number or subject or by any other desired system. Sometimes transparent envelopes made of 'cellophane' are used for storing microfilm strips with a narrow flange of the envelope separated by a thread stitching (or 'welding' in the case of polyethylene envelopes) where a paper strip carrying the typed title and indexing information is inserted. While such a system may be more elegant or flamboyant (not because it is adopted by the 'Flambo' people!) it is definitely not easier to maintain or, if need be, to interchange the microfilms. Moreover some types of transparent envelopes do not keep well in tropical climates, and where air-conditioning is not feasible they tend to stick to the microfilm strips, especially during the monsoon or the rainy season. Any system of storage should be such that it will not affect the qualities of the microfilm image or of the filmbase in any way and will not hinder quick and easy handling, selection or retrieval. All the precautions mentioned above should be observed while using the microfilm. Chances of the film receiving physical damage even of a superficial nature should be minimized. Cleanliness and care in handling should be the watchwords for anyone using microfilms in any manner — by inserting into a reading machine just to obtain information or reproducing further copies from it in an enlarger or positive film printer.

8 CONCLUSION

Microfilm is making rapid strides abroad, particularly in the U.S.A. and in the field of documentation. The application of microfilm is finding new horizons to conquer in conjuction with new and improved processes like Xerography, Electrofax, Kalfax, Projection Verifax etc. The use of microfilm in various phases of documentation is thus fast getting more popular, wider, simpler and easier. Indian science, technology and industrial advancement cannot but be affected by these developments sooner or later. India has been rather slow in waking up to the indispensability and potentialities of the various tools and techniques of documentation in its tremendous bid to catch up with the technically advanced countries; though, this country has already made a substantial and original contribution to the confluence of classificatory concepts, only on the sound foundation of which the documentalist has built and can build his edifice of service. Slowly but surely and steadily, documentation and most of the important vehicles of its services, viz. microfilm, are making their impact in the betterment of our country. The need for standardization in the various aspects of the production and use of microfilm and the cognizance of such a need by all concerned is important and should be considered imminent if we are not to lag behind in adopting and adapting the newer techniques now being developed in the advanced countries for our needs to rationalize and accelerate our rate of development. The Indian Standards Institution has given a place of prominence to the more fundamental regions of documentation — its theories and techniques — but it is time it concerned itself more with the vehicles of documentation like microfilm and took some initiative in formulating standards rather than giving comments on and/or adopting those originating from elsewhere.

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Paper D

CLASSIFICATION AND RETRIEVAL

PROBLEMS OF PURSUIT

DEPTH CLASSIFICATION 32

S R RANGANATHAN

Begins with a brief account of the work done in recent past in the theory of classification, including facet analysis, fundamental categories, zone analysis, common isolates, special isolates, and postulational approach. Estimates the Common Isolates for advance enumeration to be about 1,000 for Energy, 10,000 for Matter, and 100 for Personality. Conjectures the likelihood of special Isolates becoming quasi-common or seminal for Energy. Estimates the Special Matter Isolates for advance enumeration to be of the order 10^{10}. States that the notational devices for the Special Personality Isolates are available to handle them as and when they emerge. Points out the need for additional principles to facilitate assignment of facets to levels and rounds, and for the investigation of semantic problems involved in the breaking down of Composite terms to fundamental ones.

Contractions used

CC: Colon Classification
UDC: Universal Decimal Classification

0 PAST WORK

01 Facet Analysis

Even micro subjects have to be classified to-day to facilitate literature search. Their number is already running into several millions. The annual addition to their number runs to several thousands. An all-through enumerative schedule of them is impracticable. Therefore, recent work in the theory of classification has reduced enumeration to a number of small schedules at the level of individual facets of subjects. This is the result of facet analysis. For each facet, the number of enumerated isolates is small, often less than a hundred. The annual addition of new enumerated isolates, in the case of most facets, is nil or negligibly small. In some facets, they can all be anticipated and enumerated in advance, without waiting for literary warrant to develop.

011 Isolates in Deeper Level

A facet comprehends only fundamental thought-units or isolates belonging to a deep semantic level, unlike composite thought-blocks or subjects belonging to the semantic surface level. At the deeper semantic level, the frequency of formation of new thought-units or isolates is small, unlike at the semantic surface level where the frequency of formation of new thought-blocks or subjects is very large - extremely large in the case of micro-subjects. This is a result of the possibility of the subjects at the semantic surface level being formed out of n - isolates. Future work should take enumeration to still deeper level — the seminal level. The number of seminal isolates will be extremely small. Even the decennial addition to their number will be negligibly small.

02 Five Fundamental Categories

The postulation of the five fundamental categories - Personality, Matter, Energy, Space, and Time - has implied the recognition of five corresponding kinds of facets. This has made further work more manageable. For, the number of isolates and the number of seminal isolates in facets vary from kind to kind. The rate of addition to their number also varies from kind to kind. The extent, to which formation of new isolates attracting literary warrant can be anticipated, varies similarly from kind to kind of facet. Facets of certain kinds are now known to consist only of a relatively small number of isolates. The few facets, requiring an indefinite addition to isolates have now been singled out. Further, these few are amenable to different methods of investigation. This is explained later in the paper.

03 Zone Analysis

For convenience of reference, we shall denote a focus in an array by the term Array-Isolate. We can use two characteristics to devide the array isolates into groups.

031 Special vs Common

One characteristics for division is the array-isolate being either

1 special to its host basic class or to its immediate universe; or

2 not special - that is being a common isolate likely to arise in relation to any or nearly any host classes.

032 Enumeration vs Device

The second characteristic for the division of array isolates into groups is the array being got either by

1 ad hoc enumeration; or
2 a device, such as alphabetical, chronological or subject device.

033 Kinds of Array Isolates

Each of the two characteristics is dichtomic that is, each yields only two groups of array isolates. The successive application of the two characteristics gives four divisions. In other words, four kinds of array-isolates are possible in an array. They are

1 Common isolate got by enumeration;
2 Special isolate got by enumeration;
3 Special isolate got by a Device; and
4 Common isolate got by a Device.

034 Zone Formation

It is helpful to put together - that is consecutively in the array - all the array isolates of one and the same kind. This creates four zones in an array. There are 24 ways of forming these four zones. In CC, they are formed in the sequence in which they are mentioned in section 33. The zones are numbered accordingly as zones 1, 2, 3 and 4.

035 Notational Character

The mixed notational system of CC makes the array-isolates numbers of each zone have, generally speaking, a distinctive character. A number of Zone 1 begins with a Roman small. A number of Zone 2 begins with an Indo-Arabic numeral or if it begins with an octavising Indo-Arabic numeral 9, its first significant digit is an Arabic numeral. A number of zone 3 begins with a Roman capital or if it begins with the octavising Indo-Arabic numeral 9, its first significant digit is a Roman capital. A number of Zone 4 begins with a circular bracket. UDC has not yet recognised the existence of these zones in an array being naturally formed in the idea plane itself.

04 Common Isolates
by Subject Device: Zone 4

Zone 4 of an array does not raise any serious problem. Its isolates can be easily given isolate numbers as and when they emerge. The only possibility is that an isolate number got by subject device may become long. But, as and when literary warrant of a particular isolate of this zone increases or is likely to go beyond a limit, it will be useful to transfer it to Zone 2. Notational provision can be easily made for this. Some experiments have been already done.

05 , Common Isolates by Enumeration: Zone 1

The 'Form Divisions' or, 'Common Subdivisions' of the DC tradition had permeated all the schemes of classification including CC. Their schedule has been found to be a hotchpotch. A summary of this analysis will be found in Prolegomena to library classification, ed 2, 1957, sec 458 to 45823. Section 458 of this book examines critically the Form Division of U.D.C. Some of its isolates do not belong to subject-classification at all. These have now been separated out in CC; they have been transferred to the care of Book Number. The residue is denoted by the term Common Isolate. An isolate having the same isolate term to denote it and the same isolate number to represent it, in the context of all or nearly all subjects, is called a Common Isolate. The common isolates lend themselves to further analysis. They fall into the five groups:

0 Anteriorising common isolate;
1 Posteriorising common time isolate;
2 Posteriorising common space isolate;
3 Posteriorising common energy isolate;
4 Posteriorising common matter isolate; and
5 Posteriorising common personality isolate.

By definition, they all belong to Zone 1. They need enumeration. In the light of the trend of the literary warrant of the past and the present, these common isolates can be anticipated more or less exhaustively. If their schedules are constructed, they will take care of nearly 80 per cent of the new micro-subjects turning up from time to time.

06 Special Isolates by Device: Zone 3

Zone 3 does not raise any serious problem. Definite criteria have now been established for the use of alphabetical device. The use of chronological device also has been made to rest on more or less definite rules. Therefore, the special isolates amenable to any of these devices can be easily given isolate numbers, as and when they arise.

07 Special Isolates by Enumeration: Zone 2

In general, Zone 2 alone cannot be filled up in anticipation. The isolates in it will have to be enumerated and added to from time to time in the light of and after the emergence of literary warrant. This problem will engage more attention in the case of Personality Facet than of others. Further, the necessity for this may be created only by about 10 per cent of the newly emerging micro-subjects. This is a conjecture.

08 Future Work

We shall next take a peep into the future. Some problems are pressing. Some require a good deal of man-power. Others require only small man-power. Some require only routine investigation. Others require more serious investigation. Some fall entirely with in the filed of the library profession. A few invoke the aid of other professions. Whatever result can be achieved will be equally of use for library classification, for the building of the library catalogue, and for the building of the machine language.

081 List of Problems

A list of 44 problems for pursuit is given in chapter 88 of my Prolegomena to library classification, ed 2, 1957. They stand grouped as follows:

Category	Number
Idea Plane	16
Notational plane	11
Construction of schedules	7
Probably insoluble	3
Abstract classification	6
Total	44

When the above list was drawn up, postulational approach was not well developed. The succeeding sections examine some of the major problems for pursuit as they appear when viewed from the anlge of postulational approach.

1 TIME FACET

The entire time facet is a facet of common isolates. A considerable amount of work has been done on it. Analysis has disclosed the need for

1 Representing time measured in different eras;

2 Representing private time - that is time measured from a point intrinsic to a subject;

3 Use of different units for measurement - durations ranging from fraction of a second to geological ages; and

4 Second level of time-facet to represent seasons, night, twilight, etc.

This has been called Featured Times. This does not admit of quantitative division. It admits only of topological division.

The notational system of CC is resilient enough to implement the findings of the idea plane in respect of all these. The notational system of UDC is nearly resilient. Suggestions have been made to make them fully resilient. All this work is only a first attempt. It is contained in my Common isolates in documentation work: (3) Time isolate, (Review of documentation, 23, 1956, 70-79). It requires testing, improvement, and being placed on a firm footing.

2 SPACE FACET

The entire space facet is a facet of common isolates. A considerable work has been done on it. Analysis has disclosed the need for

1 Dividing the surface of the earth as well as any area in diverse ways to meet the requirements of different subject;

2 Second level of space-facet to represent physical features, etc. (This has been called Featured Space); and

3 Third level of space to represent different horizontal strata.

The notational system of CC is resilient enough to implement the findings of the idea plane in respect of most of these. The notational system of UDC can be made equally resilient. Its sequence of levels needs examination. The result is contained in my Common isolates in documentation work(4) Space isolate (Review of documentation, 24, 1957, 18-28). The isolates in space facet have generally to be formed topologically and not quantitatively. It requires testing, improvement, and being placed on a firm footing. No scheme gives a fully detailed list of political and administrative divisions of all countries. This must be done. It is becoming urgent as extensive research in social sciences has begun and is accumulating literary warrant on intensive regional studies and local surveys pertaining even to tiny localities. It is also needed for maintaining local records in a helpful sequence in central collections and to retrieve them easily. There is however one unsolved problem which is probably insoluble. It is the situation created by the political and administrative divisions flouting the Canon of Permanance. This routine work may require not more than one man-year.

3 ENERGY FACET

31 Common Isolate

Literary warrant brings out that most of the energy isolates needed in depth classification for documentation are common isolates. Some of these figure most in Natural Sciences. Others figure most in Social Sciences. It is conjectured that their total number may not exceed 1,000. Micro literature should be systematically scanned to list the posteriorising common energy isolates. A study of this list will disclose helpful ways of making filiatory groups and sub-groups of them. Once this grouping is made in the idea plane, the work in the notational plane will be easily done with Group Notation. (Ranganathan: Prolegomena to library classification, ed 2, 1957, sec 368 and its subdivisions). Probably the average number of digits in the ultimate isolate numbers may be only 3 in CC and 4 in UDC, An extensive scanning of micro literature and the establishment of a schedule of common energy isolates may require about 2 man-years.

32 Special Isolate

Most of the special energy isolates are quasi-common isolates in the sense that they are amenable to the Canon of Seminal Mnemonics. In other words, though the term denoting an isolate idea in the context of different subjects may be different, the identity of the isolate idea at the deeper seminal semantic level of all the subjects is recognisable. Therefore, it can be denoted by the same isolate number in all subjects. This would make the amplification of Zone 2 of an energy schedule comparatively easy. It can be left to the autonomy of individual classifiers even. Work should be done to construct such a seminal schedule in all its fullness. There is an Indian tradition that isolates in this deep seminal level had been spotted out and fitted with notation in some earlier age. But I have not yet been able to get at this. The help of Indologists - particularly specialists in tantra literature - should be sought. The residue of the special energy isolates will be very small.

4 MATTER FACET

41 Common Isolate

Properties and values figure large in micro subjects. It is helpful to review them as posteriorising common energy isolates. It is conjectured that their number may not exceed 10, 000. If a schedule is constructed for them, it will give great relief in the depth classification of micro subjects. Pilot work was done on it last year. It has been found that its schedule can be constructed easily by applying the Canon of Scheduled Mnemonics. In CC, we have only to change the Roman capitals representing main classes into the corresponding Roman smalls. There are also a few principles to be arrived at in respect of the overlooking of some of the facets in the main classes used. The zone notation is found particularly helpful in certain cases. Side by side with deriving the schedule of common isolates from the schedule of special isolates for the basic classes as indicated above, micro literature also should be systematically scanned, to discover any properties and values that may escape the a priori sweep suggested above. This work may require 3 man-years. Now that thought is being turned on the special requirements of the classification of social sciences, part of this schedule dealing with values will be of considerable help.

42 Special Isolate

There should be an over-all master schedule of matter isolates. This will have to include all raw materials, ultimate commodities, all stages of intermediate commodities, and all services. Their number may be of the order 10^{10}. The work done in the notational plane of CC is such that all the findings in the idea plane can be implemented. The only work to be done is scanning macro and micro literature and making a list of all materials and services. The Customs Authorities have done some spade work in the field. Their list can form the starting point. It is estimated that this work will require about 100 man-years. The results of this work belong essentially to the idea plane. They will therefore be of use for incorporation in any scheme of classification including UDC. Now that thought is being turned on the special requirements of the classification of Social Sciences, this schedule will be of use not only in Economics but also in the part of Sociology dealing with antefacts. If it is completed, depth classification will get great relief. For much can then be left to the autonomy of individual classifiers.

5 PERSONALITY FACET

51 Common Isolate

Little work has been done on posteriorising common personality isolates. They may not far exceed 100. By a systematic scanning of micro literature, a list of these can be made. If this work in the idea plane is completed, the work in the notational plane will be simple. Most of the original sources and other archives of the various kinds of bodies - governmental and non-governmental - with all degrees of ramification will need this. A completion of this schedule and of the common energy schedule will make the classification and organisation of such source materials easy.

Therefore in addition to FID bodies interested in Social Science research should also help an early completion of this project.

52 Special Isolate

The special isolates in the personality facets will be many. Even the special isolates of Zone 2 – that is special isolates to be enumerated – will be many. The building of their schedules will have to be a continuing piece of work, in the light of the literary warrant developing from time to time. In CC, the need for a formal schedule can be by-passed to a large extent, with the aid of the Canon of Scheduled Mnemonics and the Cannon of Seminal Mnemonics. However, much has to be done to make full use of these aids. Some guiding principles should be got. Probably, they will have to be got by empirical methods. It is not impossible to fit UDC also to take advantage of a similar approach.

53 Environmented Entity

The behaviour of an entity varies with environment. In a new environment, it has to be treated as if it were a new entity. I have called it Environmented Entity. It figures much in micro literature. The ifrst study of the problem will be found in my Classification of enumerated entity: (Report 8 of FID/CA, General Theory of Classification, 1958) (Review of documentation, 25, 1958, 122-127). There, environment was treated as if it were another facet. According to the further work done in the subject, this does not give helpful results. The helpful result as reviewed from the idea plane, can be got only by treateng the environmented entity as a new brand of the original entity of the normal or favoured environment. In other words, an environmented entity should be treated as if it were a sharper focus of the original in its own facet. In the array of brands, environemted entities should have precedence over the brands themselves. This is got by the superimposition of the environment isolate over the original isolate. This finding in the idea plane is easily implemented in the notational plane of CC. The environment isolate should be got normally by subject device: The helpfulness of this way of treating an environmented entity needs to be tested and confirmed. While most environmented entities are personality isolates, some may be matter isolates.

54 Telescoped Facet and Array

To secure economy in notation, the personality facet has often to be telescoped one or to be made of a telescoped array. Telescoping will cause economy in the coding for machine search also. Not only consecutive arrays in a facet can be telscoped but also facets belonging to consecutive levels can be telescoped (Prolegomena to library classification, ed 2, 1957, sec 367). The telescoping technique is still in the infant stage. It presents many problems for investigation and solution. Most of them belong to the notational plane. One such problem concerns the telescoping of energy facet and personality facet. This has been brought out in sections 8231 and 8232 of my Depth classification(19) Classification of management (Annals of library science, 3, 1956, 33-85).

55 Ineffability of Personality

There is a difficult problem to be pursued in the future . It is concerned with the recognition of an isolate as a personality isolate. This is made difficult by three causes. In the first place, a personality isolate is often got by chronological device or geographical device. When geographical device is used, the isolate term used to denote the personality isolate is identically the same as the one used to denote a space isolate. This has produced a wrong, but deep, tendency in mind to look upon the personality isolate concerned as a space isolate. For example, when we speak of History of England, England is unconsciously taken to denote the geographical area England – i.e. a space isolate. But in reality it stands for the community living in England – a personality isolate. The same wrong tendency exists to a smaller degree in respect of chronological device. Secondly, energy and matter also may officiate as personality in some cases, as time and space do.

Classifiers can be easily made to get over these two difficulties by practice. But the third difficulty is deeper. It requires considerable insight to distinguish between personality and matter isolates. This distinction depends on the context of the host-class. For example, in the context of carpentry, 'Chair' is personality. It is only the 'Timber' or the 'Steel' or the 'Aluminium of which it is made, that is matter. But in the context of metallurgy or chemistry, 'steel' and 'aluminium' have to be taken as personality. There are cases which are not even as easy as this. At present, personal demonstration is necessary to develop the necessary insight and reflex action into this delicate decision. Much work remains to be done to put the solution of this problem on an objective basis. Some criteria should be evolved to identify an isolate as a personality isolate or any other isolate in a given subject-context.

6 POSTULATES AND PRINCIPLES

61 Postulational Approach

As stated already in section 1, several thousands of micro documents call for classification every year. Many of them embody new micro subjects. It is impracticable to make a schedule for them in anticipation. It is tantalising to choose consistently one of the several millions of the possible sequence of them as a preferred helpful sequence. It is equally tantalising to find, by special reasoning in each case, to find a helpful place for them among the already existing subjects. This leads to a confusion. Even the choice of the sequence of the micro subjects should be mechanised — and not merely the maintenance of a preferred sequence. This has been made possible by postulational approach to classification. This approach has been actively pursued during the year under report. In this approach work in the idea plane, the verbal plane, and the notational plane is based on a respective set of postulates. A definite procedure of severe steps is prescribed for the facet analysis of any subjects in the idea plane and for the facet synthesis in the notational plane. The postulates and the associated principles are such that in the resulting classes numbers throw the subjects in a helpful filiatory sequence in a consistent way - in other words, mechanises the choice and sequence of subjects.

62 Steps in Classification

Probably we may begin with a demonstration of classification according to postulational approach.

620 Step 0: Raw Title

"Effect of a dosage of 5 cc of C367 every two days for dog-bite".

6201 Explanation

Raw title is the title found in the document.

621 Step 1: Expressive Title

"Effect of injection" of a dosage of 5 cc of "the vaccine "C367" with a periodicity of two days "for curing" "the disease" "of the central nervous system" "caused by virus from" dog-bite "in Medicine".

6211 Explanation

1 The following kernel terms have been inserted along with their auxiliaries within quotes to make explicit the basic class and the isolates omitted in the raw title but implied in it.

Injection	Disease
Vaccine	Central nervous system
Periodicity	Virus
Curing	Medicine

2 "Medicine" really stands for the basic class dealing with human body.

622 Step 2: Kernel Title

"Effect injection 5 cc Vaccine C367 Periodicity of two dyas curing disease central nervous system Virus Dog-bite Medicine".

6221 Explanation

1 Auxiliaries are omitted
2 Only the kernel terms are retianed
3 'Medicine' is the basic term
4 The other terms are isolate terms
5 Each of the terms denotes a facet of the subject of the document.

623 Analysed Title

Effect [4E] (PCEI) Injection [3E] 5cc [3M] (PCMI) Vaccine 367(3P) Periodicity of two days [T] Curing [2E] Disease [E] Virus [2P] Dog-bite [2P2] Medicine (BC).

6231 Explanation

1 Explanation of the contractual symbols

1: Meaning of contractions:

[2E] = Second round energy facet
[2P] = Second round first level personality facet
[2P2] = Second round second level personality facet
[3E] = Third round energy facet
[3M] = Third round first level matter facet
[3P] = Third round first level personality facet
[4E] = Fourth round energy facet
(BC) = Basic Class
[P] = First round first level
(PCEI) = Posteriorising Common Energy Isolate
(PCMI) = Posteriorising Common matter Isolate
= Property
[T] = First level time facet

2 By postulate, energy has only rounds and no levels.

3 By Later-in-Time Principle, 'Curing' follows 'Disease'. Therefore 'Curing' is assigned to thesecond round.

4 By Actand-Action-Actor Principle, 'Central nervous system' proceeds 'Disease'; and 'Disease' precedes 'Virus'. Therefore, 'Central nervous system is assigned to the first round; and 'Virus' is assigned to the second round.

5 By Entity-Source Principle, 'Virus' procedes 'Dog-bite'. The later has to be assigned to the same round as the former. Therefore 'Dog-bite' is assigned to the second round second level.

6 By Actand-Action-Actor-Principle, 'Curing' precedes 'Vaccine C367'. Therefore the latter is assigned to the third round.

7 '5 cc' has to be assigned to the same round as 'Vaccine' – that is to the third round. Moreover, by postulate it has to succeed 'Vaccine'.

8 By Actand-Action-Actor-Principle, 'Vaccine C 367' and '5 cc' should precede 'Injection'. Therefore, it is assigned to the third round.

9 By Later-in-Time Principle, 'Effect' succeeds 'Injection'. Therefore, it is assigned to the fourth round.

624 Stage 4: Title in Transposed Form

"Medicine (BC) Central nervous system [P] Disease [E] Virus [2P] Dog-bite [2P2] Curing [2E] Vaccine C367 [3P] 5 cc [3M] Injection [3E] Periodicity of two days T Effect 4E".

6241 Explanation

1 By postulate, (BC) occupies the first place

2 By postulate, [T] should come in the last round

3 But there is now no objective principle to fix the position of a common isolate such as 'Effect'. It is left to our vague semantic sense. It is added after [T]

4 Or perhaps, it is wrong to take 'periodicity' of two days' as a manifestation of the fundamental category Time qua Time. In other words, the analysis in Step 3 is perhaps wrong.

5 The sequence of the other facets is the result of the analysis in Step 3.

625 Step 5: Title in Standard Facet Terms

Medicine (BC) Central nervous system [P] Disease [E] Virus [2P] Dog [2P2] Therapeutics [2E] Vaccine C367 [3P] 5cc [3M] Injection [3E] Periodicity two days [T] Facts [4E]

6251 Explanation

1 A Standard term is the one found in the schedule of classification. If it does not occur in the schedule, the terms of art in usage is to be used.

2 'Dog-bite' has been replaced by 'Dog'.

3 'Curing' has been replaced by 'Therapeutics'.

4 'Effect' has been replaced by 'Fact' (which is got by experiment and observation).

626 Title in Facet Numbers

L (BC) 71 [P] 4 [E] 24 [2P] K1 [2P2] 6 [2E] 697 C367 3 b635 [3M] 6 [3E] a B 2 [T] j [4E]

6261 Explanation

1 The facet numbers are according to the Colon Classification.

2 The number for 'Dog' is not in the schedule. It has been constructed in accordance with the Canons of Classification.

3 In the schedule, 6 is Serum, therapy. It is now proposed to use 6 to denote Antigen and Antibody collectively. 63 is now improvised for Vaccine, which is Antigen. 62 will be used for Serum, which is Antibody.

4 C367 is the code symbol used for a specific vaccine. Its use is equivalent to the use of Alphabetical Device.

5 In 635, it is taken that cc is the favoured unit in measuring vaccine. Therefore, no unit digit is inserted between 3 and 5.

627 Step 7: Class Number

L71:424, K1: 663 C367; b635:6-ab2:j.

6271 Explanation

1 The connecting symbols have been prefixed to the facet numbers according to postulate.

The resulting class number is the Colon Number - that is, the translation of the name of the subject into the Colon Classificatory language.

631 Idea Plane

The following are the provisional postulates for the Idea Plane:

1 Personality, Matter, Energy, Space and Time are the five fundamental categories.

2 Arranged in the decreasing sequence of their relative concreteness, the five fundamental categories fall in the sequence of Personality, Matter, Energy, Space and Time.

3 Basic classes are those enumerated as such by the scheme of classification.

4 Anteriorising common isolates are those enumerated as such by the scheme of classification.

5 Every subject includes a basic class. It may also include isolates each of which is a manifestation of one and only one of the five fundamental categories, and also anteriorising common isolates.

6 A subject may include many rounds of manifestation of the fundamental categories, Energy, Matter, and Personality.

7 Space and Time isolates can normally occur as manifestations of Space qua Space and Time qua Time, only in the last round of a subject.

8 A subject may include many levels of manifestations of the fundamental categories Personality and Matter within any round and manifestations of Space and Time in more than one level in the last round. The levels of Personality within a round occur consecutively.

So also with the levels of Matter, Space, and Time.

As pointed out in category 3 of sec 6241, the postulate 7 requires examination in the cases when helpful sequence requires that a common energy facet should succed time facet.

6321 Colon Classification

The following are the postulates forming the basis of the work in the notational plane in the Colon Classification:-

1 The connecting symbols to be inserted before an isolate number are as shown below:-

Nature of Isolate	Connecting Symbol	Read in words as
Personality Isolate	,	Comma
Matter Isolate	;	Semicolon
Energy Isolate	:	Colon
Space Isolate	.	Dot
Time Isolate	.	Dot
Anteriorising Common Isolate	Nil	

2 The ordinal value of any connecting symbol should be smaller than that of any substantive symbol — i. e. a digit occurring in a basic number or an isolate number.

3 Arranged in the increasing sequence of their ordinal values, the connecting symbols fall in the sequence 0 , : ; . -

4 The digits in each of the conventional groups — Roman smalls, Indo-Arabic numerals, and Roman capitals - have their respective conventional ordinal values.

5 Arranged in the increasing sequence of their ordinal values, the three conventional groups of digits fall in the sequence of Roman smalls, Indo-Arabic numerals, and Roman capitals.

6 The ordinal values of the starter bracket "(" is greater than that of Z; and the ordinal value of the arrester bracket ")" is smaller than that of 0.

7 The ordinal value of each Greek letter brought into use is defined ad hoc, such that its place is adjacent to the Roman capital which is its phonetical equivalent.

6322 Generalisation

In sec 71 of his paper 'Grammar of depth classification' (Ann lib sc 5, 1958, 122-131), S Parthasarathy has suggested the following seven postulates for adoption by an analytico-synthetic classification:

1 The digits in each of the conventional groups — such as alphabets, numerals, etc used in a scheme of classification have their conventional ordinal values.

2 The conventional groups used fall in a definite sequence.

3 The ordinal value of each additional symbol brought into use is defined ad hoc.

4 The ordinal value of any connecting symbol is smaller than that of any substantive symbol - ie., the digit occurring in a basic number or an isolate number.

5 The ordinal value assigned to connecting symbols for Personality Isolate, Matter Isolate, Energy Isolate, Space Isolate, and Time Isolate is such that it secures the arrangement of subjects according to the Principle of Increasing Concreteness.

6 A Personality Isolate Number, immediately following a basic Class Number, need not be preceded by its connecting symbol.

7 The digits used for Anteriorising Common isolates have anteriorising quality.

64 Work to be done on the Postulates

The postulates for the idea plane are working satisfactorily. The postulates of CC of the notational plane are also working satisfactorily. But the postulates of UDC for the notational plane need considerable revision. The revision is possible. Even in the idea plane, there are some difficult situations transcending the capacity of the present postulates. It needs examination whether the difficulty is due to inadequate insight in the identification of personality isolates and their distinction from the other isolates, or whether there should be some additional postulates. This has been brought out in Explanation 4 of Section 6241.

65 Principles for Assignment to Rounds and Levels

So far, only four principles have been formulated to help the assignment of an isolate to the appropriate round and level. They are successively

1 Whole-Organ principle
2 Later-in-Time principle
3 Actand-Action-Actor principle; and
4 Entity-Source principle

66 Work to be done on the Principles

The helpfulness of these principles should be tested extensively. There are many cases beyond the capacity of these principles. Such cases are more numerous in Social Sciences. In those cases, we depend on a vague semantic feeling. New principles should be discovered. Some may be discovered empirically. Others may be derived from the psychology of thinking. The different syntactical arrangements of the kernels of a sentence, in different languages, hide the principles to be derived from the psychology of thinking. Moreover, the psychology of thinking is not yet well-developed. Till this work is done, it may be difficult to get a a priori principles for unerring assignment of isolates to rounds and levels. But perhaps, the proportion of such difficult cases is comparatively small. Perhaps, these cases can be isolated and decided upon by the profession as a whole empirically in a tentative way.

7 SEMANTIC PROBLEMS

71 Level of Fundamental Terms

Another baffling problem is determining the semantic level to which a composite term or idea should be broken down and re-expressed in terms of the fundamental constituent terms and ideas belonging to that level. We can only speak in analogies here. Take the letters of the alphabet. To express all the words, we can have an alphabet of 10 letters, 360 letters, 1,000 letters or even a million letters. But there is an optimum number. The Roman alphabet comes near it. But it is not as good as we wish it to be. Equally difficult is the problem of finding the optimum semantic level. It has for the time being to be got only by trial and error. This amounts to saying that the number of facets which could be seen in a subject and the number of arrays needed in a facet to accommodate a particular isolate are left to flair. Can any objective principles be found to replace flair? If so, classification as well as machine language will be helped. There is also the idea of a basic class and main class. This too needs to be put on objective basis. Perhaps one way to decide whether a subject is a basic class is to examine if it can be derived from the already postulated basic classes either by the addition of facets germane to it or by the addition of phases.

72 Touching the Seminal Level

Though a higher semantic level is needed to make the schedule easily intelligible in the verbal plane, it will be possible to touch the deeper seminal level in the idea plane and the notational plane. If it is done, it will be possible to establish a very small number of short seminal schedules. This can form the master scheme. It will carry in a potential form every possible schedule at the conventional semantic level. The function of the brief schedule in the seminal level will be comparable to the function of the ultra-microscopic gene in genetics. The construction of the conventional schedule at a higher semantic level, in terms of the jargon appropriate to each basic class, with the aid of the seminal schedule, will give far better consistent results. This will make coding for machine much easier than at present.

Paper E

CLASSIFICATION OF DEMOGRAPHY

DEPTH CLASSIFICATION 33

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Attempts at a comparative study of the schedules for Population Studies in some of the schemes of classification. Brings out the scope of this field and analyses some population problems on the basis of literary warrant. Gives a tentative schedule for Demography according to Colon Classification.

ABBREVIATIONS

CC	-	Colon Classification (ed 5, 1957)
DC	-	Dewey Decimal Classification (15th Standard edn.)
UDC	-	Universal Decimal Classification (ed 2)
Bliss	-	A Bibliographic Classification by Bliss (V.2, 1947).

1 INTRODUCTION

Considerable research and much progress has been made in the methodology of Depth-Classification of micro-thoughts in the fields of Mathematical, Physical and Biological Sciences, but of Social Sciences, one has yet to make a beginning. This paper is an attempt at making a comparative study of the schedules of Population Studies of various schemes of classification.

2 POPULATION AS A FIELD OF SOCIOLOGICAL STUDY

Different people have tried to define the field of population studies differently. The term Demography was first used by Achille Guillard(1) in his "Elements de statistique humaine ou demographie compare" who regarded it as the mathematical knowledge of the general movements of the physical, social, intellectual and moral conditions of populations, or, still more broadly, as the natural and social history of the human species. Levasseur(2) defines Demography as the science of population, a science which ascertains the state and studies the movements - chiefly births, deaths, marriages and migrations of population. Whipple(3) regards Demography, in a narrow sense as synonymous with vital statistics, but also states that broadly it is "the statistical study of human life".

Multilingual demographic dictionary(4) published by United Nations Population Division defines Demography as "the science which deals with the quantitative study of human populations .... the main difference between Demography and the other Social Sciences such as Ethnology, Human Geography, Sociology, Human Genetics etc. consists in the greater use that is made of quantitative methods". Even in that section of Demography in which the quality of populations is studied, which might be called qualitative Demography (and of which demographic or population genetics forms part) quantitative methods are used; the quality of populations is studied quantitatively. In the preface of his book "Population problems" Paul H. Landis(5) says "Population courses are usually taught by sociologists, but as yet unfortunately, much of the literature in the field has had a strong biological and/or economic orientation rather than a sociological one, or has escaped into a sheltered world of facts, failing to be concerned with their social meaning, or their social origins.... Population phenomena touch at some point every phase of human experience and affect social behaviour directly in numerous ways. Yet in any field one must, by the guide of logical classification, natural division of subject matter, frame of reference, precedent, arbitrary decision, or some such means, stake out a limited territory for exploitation. Population phenomena may be approached from a threefold perspective (1) as a field of factual data; (2) as a field of human behaviour requiring interpretation; (3) as a field of social action-control practices, policies etc. Any comprehensive integrated approach must combine an interest in all three aspects of population phenomena".

3 POPULATION PROBLEMS AN ANALYSIS

The problem of population growth, viewed from the point of view of factual data, is basically a problem of births, deaths and migrations depending mainly on (1) the differences between births and deaths and (2) differences between emigration and immigration.

"Vital processes deal with births and deaths. These may be statistically analysed on a crude basis dealing with the total population or by the various refined means, which take into account age groups of population and in the case of the birth rate, marital status of the population and the proportion of women in the reproductive ages of life"(6). Looking from the point of view of dynamics of human behaviur, these birth rates and death rates are in their turn influenced by the conditions of life, both physical and social; for example, different elements of the population, such as those of rural-urban residence, nativity, colour, religion, occupation, education, and income have different fertility rates (Differential fertility). Moreover, marriages and divorces, sickness and accidents have a great influence over birth rates and death rates and consequently on population trend.

The birth and death rates vary with the composition or make-up of a community. The study of "composition and characteristics" is concerned with the biological make up of a population, usually the sex ratio and the proportion of various age and racial groups. However, one may speak of occupational composition, religious make-up, marital status and such other classifications based on social activities rather than on biological characteristics.

"Distribution" has to do with the location of population in space (Density). It may be over, under, or optimum (Density) implying thereby the standard of life led by the people. Intimately connected with this problem is the question of social action or population policy of a state which may be restrictive, expansive or eugenic.

4 CLASSIFICATION

In the light of the above analysis we shall now examine the schedules of DC, UDC, CC and Bliss.

41 CC

The schedule of CC (ed 5, 1957) gives the following divisions:

51	Under-population
52	Over-population
55	Sex-proportion
56	Age-proportion
58	Distribution
581	Sparseness
585	Concentration

The above schedule omits the provision of important factors of vital processes (of Socio-Cultural behavioral character) as they operate through births, deaths and migrations, these being classified elsewhere (vital statistics in public health under medicine and migrations in Anthropogeography under geography). Over population and under population indicate terms of density and have the same connotation as "Concentration" and "Sparseness" respectively. To provide for both would therefore be redundant.

42 UDC

UDC treats the subject under Statistics. The main divisions are:

312	Demography population
312(01)	General theory; causes effects laws
312(.)	Distribution & statistics in general by countries
312.1	Births
312.2	Deaths
312.3	Marriage
312.4	Celibacy
312.6	Physical condition of population
312.7	Moral condition of population
312.8	Progress of population
312.9	Distribution and composition of population

Except for "migrations" which is classified under "325 migration and colonization" the above divisions cover the subject more or less completely. It has provided for Human Ecological aspect of the subject under "308 Sociography Social geography".

43 DC

Except for "312.6 Physical condition of population" and "312.7 Moral condition of population", DC follows UDC. Moreover, for the first time a place has been made for "Human Ecology" under "301.3". "Migration", as in UDC, is dealt with under "325 Migration and colonisation".

44 Bliss

Bliss distributes the subject to three different places as under:

	ANTHROPOLOGY
HCV	Vital Statistics
HVW	Marriages and Divorces
HCY	Death, Customs and Statistics
	GENERAL SOCIOLOGY
KAS	Population. Sociological studies Fecundity. Over population Malthusian theory.
KAT	Social geography.
	ANTHROPOGEOGRAPHY
KTB	Human Ecology
KTV	Migrations

5 LITERARY WARRANT

The Demographers have approached the subject from different angles and the analysis of the literature put forward by them year to year, brings out the inadequacy of the provision made in the schedules of the various classification schemes.

51 Regional Approach

Regional approach deals with the structure, components and the rates of growth in specified countries or regions; it studies the variations over time, in the rates of growth, fertility, mortality and migrations, to be found in various regions and countries and consequently it takes account of differences related to such characteristics as geographic location, age, sex, marital status, race, nationality, education, economic activity and income. There are regional studies of populations in the period before proper population statistics become available (Historical Demography).

52 Spatial Approach

Spatial studies of rural, urban metropolitan and suburban populations lay greater emphasis on location pattern and their interpretation.

53 Descriptive Demography

Descriptive Demography describes the characteristics of the population related to age, sex, marital status, race, nationality, education, economic activity and income. There are studies based on quantitative data, on variations in the rates of growth, fertility, mortality, migrations, marriages and divorces.

54 Applied Demography

Applied Demography mainly concerns itself with the forecasting of future population movements and with studying the effects of certain policy measures on population development. Population forecasts or projections are devised in order to make certain qualified estimates about the future course of population movements both short term and long term.

55 Population Theories

The study of population theories also form part of Demography. Such theories are designed to explain the development of population movements or to serve as basis for population policy primarily to national policies or relative to measures affecting fertility, internal-redistribution, migrations, quality of population etc. The studies related to population trends and economic and social conditions influencing demographic behaviour also form part of Demography.

56 Statistical Aspect

On the statistical side, Demography concerns itself with methods of research and analysis, with the production of basic data of population research such as registration of births statistics, population censuses and registers, and with other methods of data collecting and processing.

6 SCHEDULE FOR CC

Bearing in mind the threefold perspective of the field and also the literary warrant the schedule of CC could be re-designed as under:

POPULATION DEMOGRAPHY

51	Composition and Distribution
512	Characteristics
5121	Biological
51216	Blood groups
5122	Psychological
5123	Economic
51231	Income
51232	Wealth
51233	Status
51234	Occupation
51235	Employment
51239	Industry
5124	Social
51241	Literacy
51245	Religion
5125	Demographic
51251	Age
51252	Sex
51253	Residence
5127	Ethnic
51271	Origin
51272	Colour
51273	Language
514	Distribution
5142	Migration
51421	Internal
51422	International
51425	Emigration
51426	Immigration
518	Density
5181	Under population
5183	Over population
5184	Optimum population
52	Births and Deaths
521	Marriage
5211	Trend
5213	Duration
5215	Demographic Characteristics
5218	Divorce
522	Family
5221	Composition
5222	Size
5223	Fecundity
5225	Family planning
523	Births
5231	General fertility
5233	Differential fertility
5234	Sterility and Pathology
5235	Fertility control
524	Sickness Accidents (To be divided as 4 in Ecum 2P of L)

525	Death
5251	General mortality
5252	Prenatal mortality
5253	Infant
52534	Causes
52535	Differential mortality
5255	At other ages
52554	Causes
52555	Differential mortality
5256	Life-tables
526	(Natural increase) Trend in population size
5261	Part trend
5266	Estimates (Inter census)
5267	Projections (Long range)
53	Social action policy
531	Internal redistribution
532	International migration
533	Measures affecting fertility
536	General measures
538	Measures affecting quality
55	Methods of Research and Analysis
556	Estimates
557	Projections
553	Fertility
555	Mortality
56	Organization and Administration
561	Registration of vital statistics
562	Population census
563	Other data collecting processes
57	Official data
571	Census
572	Vital statistics
574	Migrations
575	Demographic data
576	Other primary data

Here it may be emphasized that population growth is a process of social change in a specific direction quantitatively defined with respect to size and Demography is the study of population change. Therefore the inclusion of the "Methodology of the quantitative measurements" in the above schedule, cannot but be proper.

Reference

1 Encyclopaedia of social sciences. New York : Macmillan. 1930-35, Vol.5, PP.85.

2 Encyclopaedia of social sciences. New York : Macmillan. 1930-35, Vol.5, PP.85.

3 Ibid PP. 85.

4 United Nations Department of Social. Affair, Population Division, "Multilingual demographic dictionary" 1954, PP. 17.

5 Paul H. Landis. "Population problem". New York : American Book Co. 1943, PP.5.

6. Ibid PP.3.

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7 EXAMPLES

CC No.	Isolate term	UDC No.
	POPULATION THEORY	
Y:5:a	Population theories	312(01)
Y:5:a.M06	Malthusian theory	312.12 or 312(01)
Y:5:a.N29	Population theory of Corado Gini	312(01)
	COMPOSITION AND DISTRIBUTION	
Y:51251	Age composition	312.95(54)
Y:5181:66d(Q)	Under population & religion	312.83:2
Y:5183:5(L55:34)	Over population prevention, abortion	312.82:312.12:618.3
	MARRIAGE FERTILITY AND MORTALITY	
Y:5225	Family planning	312.12:173:312.95
Y:52333	Rural-urban fertility	312.1:312.921/22
Y:52334	Fertility and occupation	312.1:312.93
Y:5235	Birth control	312.12
Y:525.2	Mortality in India	312.2(54)
	OFFICIAL DATA	
Y:571.2.N51	Population census of India 1951	312(54)"1951"
Y:572	Vital statistics	312
Y:5723.3.N4	Birth rates (Crude) in England during 1940-1950	312.1(42)"194"
	POPULATION DISTRIBUTION (Spatial Studies)	
Y31-33:514	Rural urban population	312.922:312.921
Y33:514.2	Urbanism in India	
	LABOUR	
Y49:5123.73	Labour force in United States	
	REGIONAL STUDIES	
Y71:5.N4	Population growth - the world trend 1941-1950	312.81(100)"194"
Y72:5	Population of India	
Y73:5	Population trends in England	

Paper F

LIBRARY SERVICE AND RESEARCH IN INTERNATIONAL AFFAIRS

S R RANGANATHAN

Describes the emergence of documentation service as a part of library service, the recent entry of the social sciences into the Spiral of Scientific Method, and the attempt of the discipline of International Affairs to enter it through the normative principles of Balance of Power and Geo-Politics. Shows the nebulousness of Unesco's attempt in rationalising documentation in social services. Points out geographical grouping of minutely classified entries as the best form for the documentation list of descriptive accounts of historical occurrences. Foretells the possible emergence of a Science of International Affairs, demanding assignment of nascent thought to the basic class Political Science.

1 LIBRARY SERVICE AND RESEARCH

11 The Past: Isolated Work

Library service has evolved through ages. Research work too has evolved through ages. In the past, library service was concentrated on preserving recorded thought and picking out and issuing for use, any book sought by a reader voluntarily. In the past, research work was done largely by isolated men of genius, depending largely on their own inner urge and acumen and hardly depending on thought created and recorded already by others; if at all, such thought was gathered by word of mouth and research workers were self-helpers. In the past, therefore, the librarian need not have had knowledge of the contents of books; nor need he have been a learned man capable of understanding either research methods or of making literature-search.

12 The Present: Documentation Work

This situation has now changed. The change has been brought about by social pressure. Social pressure demands research in any field of knowledge being pursued by a large and widely-spread team of workers. The research potential of the world has to be conserved severely. It should not be wasted away in unintended repetition of investigation already done elsewhere by somebody else. Research-in-Parallel should give place to Research-in-Series. Every new thought-unit created anywhere in the world should be promptly communicated to every other research-team in the world. Learned periodicals are floated in ever-increasing numbers as carriers of nascent micro-thought. The quantity of nascent thought being created is for too much even for a man of genius to keep track and feed upon by himself. If he seeks to do so, his research-time will be wasted. The research-potential of the world will, to that extent, be dissipated. To complete the communication of nascent thought without this waste in research-potential, the entries of the documents carrying the nascent thought should be organised and featured in a filiatory way, so that the man of genius can put his fingers just on those documents that are relevant to his own current work, without the least waste of time and without missing anything whatever. Such an organisation and presentation of all the current nascent thought in all fields of knowledge is a new branch of library service, turned on research workers. It is called Documentation work. Documentation Work too has to keep itself efficient and abreast of new formation of thought, by continuous research on its own methodology.

It has been shown in my Canons of abstracting (Paper 2.16 in the Depth Classification, ed by S R Ranganathan 1953) that a good documentation list will reduce the time of reading current periodicals to the extent of 1/500 of what it would be otherwise.

13 The Present: Reference Service

Again, since a research-team includes persons of different intellectual removes from the self-helping genius, there is now need for reference librarians to feed the research-workers exhaustively, expeditiously, and pin-pointedly in accordance with the Third, Fourth, and the Second Laws respectively of Library Science (See section 2 to 6 of the Five Laws of library science, ed 2, 1957, By S R Ranganathan). Such an intimate reference service to specialists is now called Documentation Service.

2 SCIENTIFIC METHOD AND STATUS OF RESEARCH

21 Spiral of Scientific Method

At this stage, we should have a look at the phenomenon of research and scientific method. Scientific method involves a spiral. In this spiral, there is a never-ending succession of cycles each consisting of the following steps:-

1 From individual experiences, through generalisation, to empirical laws derived from them with the aid of induction and normal equations;

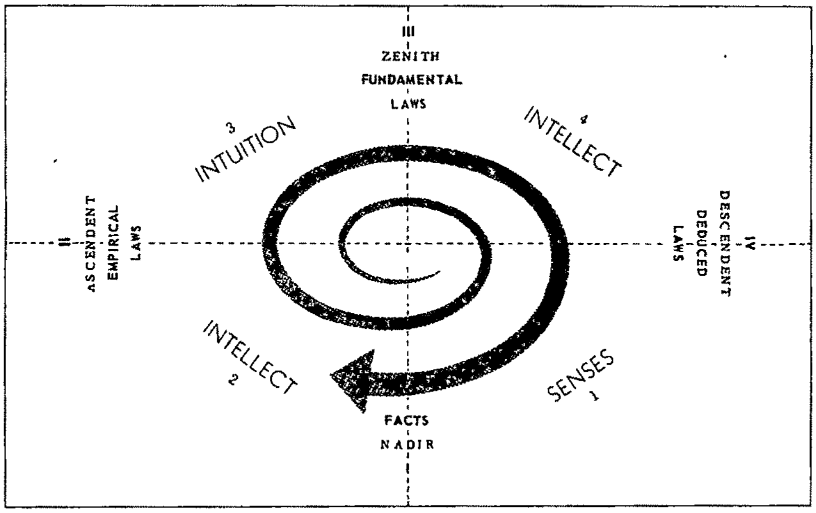
2 Through their reduction to a few normative principles, with the aid of imagination and/or intuition;

3 Through deductive laws or canons derived from the normative principles with the aid of methods of inference and semantics;

4 Through fresh individual experiences not conforming to them;

5 Back again through another cycle; and

6 So on, without end.



SPIRAL OF SCIENTIFIC METHOD

22 Research Status of Natural Sciences

The natural sciences have already gone through several cycles of scientific method. The hum of research has attained a high pitch in their case. In the sector of observation, they base themselves on manipulated and controlled experiments, with the aid of instruments of enormous magnification such as the ultra-microscope, and of instruments of large sweep such as giant telescopes fitted with spectrometers. The range of facts gathered is enormous. It is ever on the increase. The minute facts, to be ploughed back into research by documentation work and service, are getting recorded and pour down in cascades. The empirical laws get frequently changed. These call for great responsibility on the part of the documentalist-librarian. Occasionally the fundamental laws too get changed. Each such change leads to a hectic derivation of new deduced laws. These in their turn lead to an even more hectic series of experiments and observations. Thus, the cascade of micro documents, to be organised and ploughed back into research by the documentalist-librarians gets intensified. It becomes truly turbulent. This turbulence is now-a-days continuous. This continuous turbulence calls for continuous research in the technique of documentation. India is showing the way for the conduct of this research.

23 Research Status of Humanities

The intuitive subjects of fine arts, literature and spiritual experience figure only in the quadrant of the spiral open to the play of open intuition. Here, the library profession has nothing more to do than to collect and organise the documents preferably chronologically, in each field of humanities. In these fields, documentation work is the simplest. So it is with documentation service also. The documents embodying criticism of works in humanities admit of scientific method and intellectual work. But even in respect of them, documentation is not arduous. Religion is authority-centred. In its study, the cycle of scientific method is only partial - only that semi-circle which covers deduced laws and facts of experience come into play. Its method is largely that of exigetics. Here too, documentation is not arduous.

24 Social Sciences

The Social Sciences are now entering the spiral of scientific method. This they owe to the invention and the continuous improvement of statistical methods. Social phenomena have not yet lent themselves to observation through manipulated and controlled experiments. Therefore, the data for the study of social phenomena cannot be got in the reduced and simplified form, familiarly found in the study of the natural sciences. The social phenomena observed present far too many dimensions. They involve human emotions. These are still unchartered terrains. These factors call for work on the lines of probability instead of comparative certainty. Thus the social sciences have not yet begun to contribute much of micro documents based on deduction from normative principles. This makes a difference in the documentation of social sciences. The field of coverage contains more of source-materials in the form of macro documents. These are largely of the nature of serials. A serial, it must be mentioned, is a periodical publication, each successive volume of which embodies more or less similar information, mainly relating to its year of coverage. The annual reports of departments of governments, year-books giving statistical data, directories of all kinds are examples of such serials. The learned periodicals in social sciences contain mostly articles of a descriptive or of an empirically interpretative kind. Articles on methodology and of its improvement, or articles on experiment and observation occur seldom. These factors make documentation consist largely of making a complete collection of source materials and organising them helpfully, and only to a very small extent of the documentation of micro thought as in the natural sciences.

3 INTERNATIONAL AFFAIRS

"International Affairs" as a discipline has been for long in the domain of the description of occurrences in international relation. Some explanations too used to be attempted. Such an explanation was largely of a speculative kind based on a vague instinctive grasp of the psychology of emotions, such as passion, power, and personality, or of repercussions of court-life, or of political forces of other kinds. There was not much of evidence either of induction towards empirical laws, or of intuitive formulation of a few basic normative principles or of deduction from such principles. In other words, the Spiral of Scientific Method had not taken shape to any appreciable extent. Consequently, the techniques of methodology had not been developed to ever-increasing degrees of sharpness.

4 BALANCE OF POWER

This discipline of International Affairs used to be drawn into the Spiral of Scientific Method, by the formulation of some normative principles, collectively labelled Balance of Power. This did give rise to some micro-documents. But sufficient literary warrant has not accumulated to show forth clearly the highways and the byeways in the discipline, as they are and as they tend to become. This paucity of material is a concomitant of the discipline being still largely speculative. This paucity also handicaps a classificationist in establishing a firm facet-formula for the subject or to enumerate the isolates in the facets in a helpful filiatory sequence. At any rate, neither the supply nor the demand for micro documents has reached an amplitude, compelling thought on the facet-analysis of the subject, so as to make possible the depth-classification needed for documentation work or service such as what is experienced in the natural sciences or even what is experienced in the fields of economics, sociology, and law within the region of social sciences.

5 GEOPOLITICS

The emergence of Geopolitics, a few decades ago, appeared to have some promise to bring the discipline of International Affairs into the Spiral of Scientific Method. Some literary warrant gathered round this, as a peg of normative principles, in the thirties and the forties. But there is now little evidence of much new thought either on or with the aid of Geopolitics. Here again it is difficult to see clearly the highways and the byeways in the subject. No attempt has been made to establish either a helpful facet-formula or to build up helpful schedules for the facets. Documentation calling for or based on depth-classification has not yet taken shape.

6 UNESCO'S ATTEMPT

During the last few years, Unesco has been endeavouring to promote thought on the documentation of social sciences. I myself attended one of its meetings on the subject held in Geneva in 1954. But the discussion was very nebulous. The achievement was even more so. There was not a sufficient division of work between the idea plane, the verbal plane, and the notational plane. In fact, there was no sign of working in the notational plane or of drawing benefit from the concept of Seminal Mnemonics which whips up and clarifies work in the idea plane, piercing through the cloud and the confusion caused in the verbal plane. The formation of Unesco's Social Science Documentation Centre in India gave an opportunity for research in the technique of documentation. But this opportunity is being lost by failure to grasp or even to recognise the problem. The Centre is degenerating into a poorer version of centres in other places. The balance should go to Unesco as well as to India. Any little thought being turned on this problem either by full-time appointees or by private thinkers, appears to be either baffled or broken by the cloud-bank of the confusion in the verbal plane. I do not see much hope of progress unless a kind of symbolic calculus charged with the ideas of Seminal Mnemonics is developed. All these remarks are applicable as to any other discipline in social sciences. The net result is that Unesco's effort is led into the ploughing of the sand of alphabetical documentation list or the pseudo-subject list, which breaks the alphabetical sequence into some sub-sequences.

7 LITERARY WARRANT

The sample documentation list placed before the Geneva Meeting covered the micro documents of one year. Their facet-analysis disclosed that most of the articles were descriptive. In other words, they presented Space and Time Facets, which, as has been shown by me in the Review of documentation of 1955, are after all only Posteriorising Common Isolates. The facets of the host classes did not call for any elaborate special schedules for the Personality and the Energy Isolates.

71 The Demand

Shri Tewari of the Library of the Indian Council of World Affairs brought to my notice early this January some facts about the demand of the workers in the field of International Affairs.

72 Geographical Grouping

They wish to have all documents on a particular geographical area listed together in a single group in the documentation list. This demand is easily met. The only difficulty, which may flout consistency, is the definition of the ultimate geographical areas to be used as the basis for grouping. Is it a country, or even a subdivision of a country? If so, where does the step in subdivision stop ?

73 Arrangement within a Geographical Group

The next point concerns the arrangement of the entries within a geographical group. Is it to be alphabetical by the name of the author or of the title; or is to be classified on the basis of the other facets of the documents concerned? The former is said to be preferred by the research workers. If it be so, it needs correction. The alphabetical approach to any document is provided by the alphabetical index of the whole list. This need not be repeated in little, within each geographical group of entries. The proper thing is to arrange the entries within a geographical group in a minutely classified way, with helpful feature - headings got by Chain Procedure.

74. Secret Documents

Library service in International Affairs has an unusual responsibility. It is in respect of archives. These form essential source-materials. These are often unique materials. These have to be preserved for posterity, of course without prejudice to use. These can be kept only in just a few archives. A veil of secrecy will have to be put over them. The duration of the veil cannot be the same in the case of all the documents. It will have to be different for different documents. Therefore, it is usual to look upon archival service as a distinct branch of library service, with laws of its own. As shown in my Laws of archival science (in the Indian archives, 1 to 2, 1949-1950), some of these laws are even the opposite of the Laws of Library Science.

75 Newspapers as Source-Materials

Current happenings are of vital importance in International Affairs. The peace of the world depends on them. Governmental policies are to be regulated in their light. The play of economic relation is their creature. An announcement by a Government or even by a leader out of office has great potency in disturbing the world set-up or the national set-up or the local set-up, and even producing explosion or violent changes up to the extreme of war or lawlessness. They may have lightning spread. Therefore research in International Affairs gets inseparable from extreme awareness of contemporary affairs. Again, contemporary events in natural sciences are communicated in special quasi-learned periodicals, such as Nature a weekly, Comptes rendus a fortnightly, or Current science a monthly. These are relatively of long period. Such organs or media are also of select exclusive nature, undiluted by anything ephemeral or foreign to the subject of pursuit. But in International Affairs, the organ or the medium for current affairs is the daily newspaper. A large percentage of it is ephemeral and irrelevant to International Affairs. Worthwhile information is too scattered in its columns. Further, newspapers are too many in number. Their size is too inconvenient for handling. The arrangement of matter is too inconvenient for search. Therefore, library service has to include, not merely documentation of newspapers, but also maintenance of Newspaper Cutting Service. Toynbee's International affairs would have been impossible but for the Newspaper Cutting Service of the Chatham House. A detailed account of Newspaper Cutting Service is given in my Library tour (1949). This service is too costly for more than one library in a country to offer it.

8 FUTURE POSSIBILITY

All the above services amount only to organising the source materials, so as to facilitate consumption by the specialist in descriptive International Affairs. But is it unlikely that there will emerge at some future time a discipline — a science — of International Affairs. Will not the international affairs of historical occurrence lend themselves to be distilled, so as to yield some empirical laws comprehending the development of International Affairs? Will not, at a still later time, these empirical laws lead to the intuitive formulation of just a few normative principles, from which all the past and the current international affairs can be deduced as compelling consequences? Will not these normative principles disclose, by deduction, possible new patterns of international affairs? As and when they do, the documents embodying the scientific study of International Affairs will use facts of international affairs merely as guineapigs. Their main foci will be the principles and the forces shaping International Affairs. Then, these documents cannot be listed, with advantage, in the basic class "History" or in geographical groups in a documentation list. They will have to be listed with the documents in the basic class "Political Science", in its subdivision "International Affairs". The documentalist-librarian should be ever watchful for the arrival of that moment. Then he should promptly separate out the documents in the basic class Political Science and in the Science or the Discipline of International Affairs from those of history. Then Library Service in International Affairs will have to assumble, organise, and document not only source-materials falling in basic classes such as Geography, History, Economics, and Sociology but also prepare documentation list and do reference service in respect of nascent micro materials falling in the basic class Political Science and in its subclass International Affairs.

Paper G

UNION CATALOGUE OF THE NATIONAL LIBRARY OF CANADA

WHY? HOW? AND WHAT NOW?

MARTHA SHEPARD
National Library of Canada, Ottawa

Brings out the need for union catalogue with reference to Canadian conditions. Describes the method of compiling the Union Catalogue by photocopying the main entry cards of the various libraries. Indicates the need for considerable editing and constant revision. Provides a subject breakdown of the requests received during October-December 1958.

1 WHY?

Canada, with its ten provinces and width of more than four thousand miles, has three main concentrations of library resources. The province of Britsh Columbia has 85 libraries holding more than one and one half million volumes; the province of Québec, 244 libraries with more than five million volumes; and Ontario has 703 with over nine and one half million. The other seven provinces have book resources of less than a million each. As a result, interlibrary borrowing has always been heavy and, as was natural, libraries tended to apply for loans to the largest libraries in the country where they were most certain of finding the material they needed. For years, the University of Toronto Library and the McGill University Library in Montreal have received many requests for loans which could have been filled by libraries nearer the borrowing library, if only there had been some way of knowing where to find the needed material. In addition, these large libraries had no way of knowing whether material which they needed was in any Canadian library or whether they should apply abroad for their interlibrary loans.

11 Need for Union Catalogue

A Union Catalogue of the library resources of the whole country was the answer. Not only would it distribute more equally the burden of interlibrary loans, but it would greatly reduce the amount of correspondence necessary in order to locate a book needed by a library. With a Union Catalogue, of the major libraries in the country, one request to that catalogue would locate every copy in the country and the loan could be made by the nearest library, or the one best able to lend the material.

2 HOW?

When the Canadian Bibliographic Centre came into being in 1950, it was felt that its most important tasks were the publication of a national bibliography, Canadiana, and the compilation of a Union Catalogue. Both of these undertakings were begun immediately and have been continued by the National Library, which came into existence on January 1, 1953, and absorbed the Canadian Bibliographic Centre at that time.

21 Method of Compilation

The Union Catalogue has been compiled photographically. The National Library's camera and a librarian from the Reference Division have been sent to each library and all main entry cards have been photographed on 16mm film. Next, facsimile-size enlargements of these cards have been made from the films. To begin with, the enlargements were on photostat paper, but for the last three years, the cards have been reproduced by the Xerox process. Xerox prints have two important advantages: there is no danger that they will fade, and, being without emulsion, they have much less tendency to curl. The enlargements are made on long rolls of paper, 5 inches wide, and have close to 5000 cards on each roll.

For the cutting of the enlargements, a team of three clerks is used. The first one stamps each enlargement with the symbol used for the library, the second sits in front of a guillotine and cuts the cards along the top and bottom, and the third picks up the cards as they fall from the cutter, checks their order and puts them into drawers ready for filing.

22 Keeping the Catalogue Uptodate

In additionto these enlargements of the microfilmed cards, the libraries whose catalogues have been microfilmed undertake to report all titles added to their collections from the time the filming is finished. These reports of accessions are now received at the rate of 15,000 per month (three times what we received per month in 1956) and are interfiled into the Union Catalogue as they are received.

23 Editing

Considerable editing is necessary to reconcile so many systems of cataloguing and to insure that all copies of a publication are entered under the same entry. (We have found as many as seven different entries for the same book.) As time and staff permit, Library of Congress cards or National Library typed cards are used for the editing and the symbols for all the libraries holding the book are stamped on the left hand margin of the L.C. card. The enlargements or accession slips are then discarded. For these fully edited cards, added entries and references are made if needed; these make the Union Catalogue a more easily used tool.

24 Revision

In many sections it is necessary to maintain a continuous revision in order to avoid complete chaos - notably the sections with entries beginning with such words as Association, Conference, International, and the entries under the names of countries, especially Canada, United States and Great Britain. There are so many ways of entering government documents that the users of a union catalogue would be unable to find their material if a great deal of work was not constantly being done to check the entries.

25 Coverage

The Union Catalogue now contains over four million cards representing more than seven million volumes and records the holdings of more than one hundred libraries from coast to coast.

3 WHAT NOW?

Now that the holdings of libraries from each province of Canada have been aded to the Union Catalogue, a request from any library can be sent on to the nearest library having the book, thus insuring faster service and at the same time cutting down mailing costs.

31 Use of the Catalogue

The use of the Union Catalogue by Canadian libraries has grown as the library holdings have been added to it. During the first two years, most of the libraries in Ottawa were filmed and the librarians in the fifty or sixty Ottawa libraries quickly discovered that one telephone call to the National Library would locate all the Ottawa copies of a needed publication. The telephone service has grown dramatically - from 15 calls per month during 1952-53, to 431 calls in February 1959.

311 Libraries Outside Ottawa

Libraries outside of Ottawa send lists of publications for which they wish locations, or in cases where they need to borrow immediately, the interlibrary loan form is sent with the space for the lending library left blank. These titles requested are searched for in the Union Catalogue and, whenever possible, are mailed out the same day they were received. Lists are marked with the symbols for all the libraries having the publications and when interlibrary loan forms have been sent, the forms are mailed to the library nearest the borrower. A report is also sent to the borrowing library telling where their request has been sent and listing the locations of any other copies in case it is not possible for the nearest library to lend the book or periodical. The number of the mail requests has also increased greatly, growing from 7 per month in 1952-53, to 471 in February 1959.

312 Number of Requests

The number of requests which can be filled in Canada averages between 60-70% while a large number of the remaining 30-40% can be filled by American libraries. For the Union Catalogue statistics, a request is counted as filled only if it has been located in Canada.

4 SUBJECT BREAKDOWN OF REQUESTS

A pattern of the type of material being borrowed on interlibrary loan is beginning to emerge. Requests for books and serials in Science and Technology far outnumber all other subjects. The following table shows the activity in the various subject fields for the quarter October, November, December 1958.

Subject field	Requests received for		Total
	Books	Serials	
Science & Technology	649	184	833
History, Biography & Geography	537	29	566
Sociology & Economics	367	115	482
Literature, Language & Art	300	44	344
Philosophy & Religion	93	12	105

5 SERVICE

51 Telephone Service

It is interesting to note that the telephone service is mainly concerned with material published in 1951 or later, while the mail service falls into three nearly equal divisions - publications issued earlier than 1925, those appearing between 1925 and 1950, and those from 1951 to date.

52 Requests by Mail

Mail requests come from all provinces in the country and a few from abroad. During the quarter October, November, December, 1958, the number of items for which locations were sought shows the following geographical breakdown. (It should be remembered that these figures represent the mail requests only since obviously, the telephone service is largely restricted to Ottawa).

Mail requests from		
British Columbia	- 23	
Alberta	- 28	(This was four times the number received in the previous quarter)
Saskatchewan	- 90	

Manitoba	- 115	(This was more than three times the number received in the previous quarter)
Ontario	- 806	(This was nearly twice as many as were received in the last quarter)
Quebec	- 146	
New Brunswick	- 50	
Nova Scotia	- 32	
Newfoundland	- 15	(Only three requests had been received from Newfoundland previously. The Newfoundland libraries were added to the Union Catalogue in August and September 1958).
United States	- 25	
England	- 4	

6 USEFUL ROLE

We feel that the Union Catalogue of Canadian libraries is beginning to fill the role for which it was created and, while it will never be either complete or in perfect order, it is proving itself to be a valuable reference and bibliographic tool.

Paper H

INSDOC'S SERVICES

A. NEELAMEGHAN
Hindustan Antibiotics, Pimpri

Compares the coverage of Indian scientific periodicals in the Insdoc List of Current Scientific Literature and the Bibliography of scientific publications of South & South East Asia. Shows the extent of overlapping. Suggests inclusion of abstracts in the Bibliography, and publication of 1) information on scientific projects in progress, 2) ad hoc bibliographies compiled by Insdoc, and 3) abstracts of theses accepted by Indian Universities.

1 DOCUMENTATION LISTS BEING PUBLISHED

The Indian National Scientific Documentation Centre at New Delhi is now well known through its documentation, bibliographic, document procurement, translation and photoproduction services. The coverage of periodicals and articles by the Centre's Insdoc list of current scientific literature has been gradually extended. Insdoc has also taken up the publication of the Bibliography of scientific publications of South & South East Asia in cooperation with the Unesco Science Cooperation Offices in New Delhi and Djakarta.

2 COMPARISON OF COVERAGE

The Hindustan Antibiotics Library gets both the above bibliographical lists and a number of Indian papers were found indexed in both of them. From January 1958, the Bibliography is being issued monthly (quarterly previously). Therefore, the duplication of the articles indexed in the Insdoc List has became more 'conspicuous'. An analysis was, therefore, made of the periodicals indexed in the two services. Lists of the periodicals covered by the List and the Bibliography were recently issued by the Insdoc. A comparison of these gives the following data:

1	Number of periodicals covered by the Bibliography excluding classes X and Y (Economics and Sociology)[1]		
	11 Indian periodicals	280	
	12 S & S E Asian periodicals	65	345
2	Indian periodicals covered by the Insdoc List[2]		160
3	Periodicals in the Bibliography not covered by the Insdoc List (excluding the 10 periodicals in classes X and Y)		183[3]
4	Indian periodicals covered by the Bibliography but not by the Insdoc list.		118

The Insdoc List reaches Indian libraries almost simultaneously with the receipt (in Indian libraries) of the foreign periodicals indexed therein[4]. On the other hand, it is received about two weeks to eight weeks after the receipt of the Indian periodicals indexed therein. The Bibliography also reaches Indian libraries within six to eight weeks of the receipt of the Indian periodicals indexed therein. Assuming that the coverage of articles from each periodical by the two lists is the same, the library getting only the Insdoc List will miss articles from the 183 Indian periodicals exclusively covered by the Bibliography only. On the other hand, a library getting both the lists will find articles from 160 out of 345 (46 %) periodicals covered by the Bibliography duplicated in the Insdoc List. The main purpose of the Insdoc List is to serve "as a quick medium for dissemination of recorded scientific results to scientists in India and the neighbouring countries, ahead of the receipt of the periodicals through the normal postal channels[5]. This aim is best served in respect of articles in foreign periodicals. All Indian and S E Asian periodicals may, therefore be relegated to the Bibliography.

3 SUGGESTION ABOUT ABSTRACTS

More than any other indexing or abstracting service, the Bibliography covers the largest number of the scientific periodicals from India. Its value will be greater, particularly to foreign scientists, if good abstracts are provided for at least the original articles from Indian periodicals[6]. In the compilation of a cumulative national or S E Asian bibliography of scientific literature it will be of great value in the future.

4 ANNOUNCEMENTS OF SCIENTIFIC PROJECTS

Information on scientific projects in progress and proposed in the Indian laboratories is important to scientists. It would avoid duplication of effort and expenditure. Scientists working on similar or related subjects would be able to communicate with one another. They can thereby mutually benefit and plan out their work. At present, one has to check a large number of publications including periodicals, reports and newsletters of laboratories, institutions and research endowment bodies, to get some - but not adequate - knowledge of such projects in India. Also, many scientists and the smaller libraries have no access to all these publications. Insdoc would be doing a valuable service to scientists and libraries in publishing, at sufficiently frequent intervals, a register or directory of the projects in India. Of course, it calls for the cooperation of all the universities, institutions and laboratories in the collection of the information.

5 SUGGESTION ABOUT AD HOC BIBLIOGRAPHIES

Insdoc prepares a number of bibliographies on scientific subjects on request. Many of these are likely to be comprehensive. It would be worthwhile to give a list of these bibliographies or notify them in the Insdoc list just as translations are noted. Libraries and scientists may take advantge of it[7]. At least, the chances of duplication of some of the bibliographies will be minimised. Similarly, a number of bibliographies, some of which are comprehensive, are prepared in many Indian libraries. A copy of each of these may be deposited with Insdoc. These two may be listed in the Insdoc list. In due course, libraries will have valuable information on and accessibility to, a large number of bibliographies on scientific subjects.

6 SUGGESTION ABOUT THESES

Indian universities are now sending in, for deposit and microfilming, copies of the theses on scientific subjects accepted by them. It is hoped that the other institutions of higher learning and scientific research will do similarly. Insdoc should periodically issue abstracts of these theses on the lines of Dissertation abstracts (University Microfilms, Ann Arbor, Michigan). The Handbook of the Inter-University Board used to index the theses for some years and the National Archives of India are indexing Indian theses at present. But we need a more systematic and well abstracted and indexed service for the scientific dissertations. At a later stage, INSDOC could take up a retrospective indexing of all the scientific theses accepted by Indian universities and other research centres. It is, perhaps, needless to stress the value of such a guide to theses.

Notes

1 The number of periodicals listed in these classes was 10.

2 All except 2 of these are covered by the Bibliography.

3 All the 65 periodicals noted at 12 are not covered by the Insdoc list.

4 Neelameghan (A). Insdoc List, Current Scientific Literature. (Iaslic bull, 1, 1956, 37-46).

5 Insdoc. Report 1957-58. New Delhi 1958, 16.

6 Coblans (H). United Nations technical assistance and documentation. (Amer Document 6, 1956, 290).

7 Cf. Insdoc. Report 1957-58. New Delhi, 1958. p. 11, requests for translations made earlier and reported in Insdoc List.

8 Insdoc. Report 1957-58. New Delhi, 1958, 16.

Paper I

PERSIAN NAMES

S PARTHASARATHY
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Indicates the problems connected with the rendering of Persian names for catalogue entries. Gives an account of the treatment of this subject in Sharify's Cataloging of Persian works. Suggests preparation of lists of names belonging to the various elements in the structure of Persian names belonging to the period 652 A.D. to 1926 A.D. Recommends the implementation of the Indian Standard on Supplement to Author Statement as a means of securing uniformity in cataloguing at international level.

1 INTRODUCTION

Rendering of name-of-person for catalogue entries has received considerable attention in all the cataloguing codes. However the treatment of this subject in these codes is mostly confined to Western names and as such the treatment of names belonging to other regions is either lacking or scanty. In his recent publication* Sharify has made an extensive study of the treatment of Persian names in various catalogue codes, their structure, the variation in the number of elements at varying times, etc., and has worked out out an exhaustive set of rules for rendering them in catalogue entries.

2 COMPARATIVE STUDY

In this book an exhaustive study of treatment of Persian names in 137 catalogue codes have been made. The codes are considered under the following groups:

1 Codes giving no rules for Persian names

2 Codes suggesting no specific rules but recommending the use of bibliographies and encyclopaedias for choosing the entry word

3 Codes recommending that the first element or part of the name be used as entry word

4 Codes designating the given name as the entry word

5 Codes recommending that the best known part of the name be used as the entry word

6 Codes suggesting either the given name or the best known part of the name for use as the entry word.

It is pointed out that the different procedures prescribed by the various codes are due to lack of a proper understanding of the nature of Persian names.

3 USAGE

A survey of the characteristics and usage of Persian names in the earlier periods has been made for prescribing a suitable set of rules for the different stages of evolution of Persian names. The difference in structure are considered under three groups:

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*Sharify (Nasser). Cataloging of Persian works; including rules for transliteration, entry and and description. American Library Association 1959. Pp. 176. $ 3.50.

1 Names upto 652 A.D. Till this period Persian names consisted generally of only one element and occasionally of two elements. This does not present any problem in rendering.

2 Names belonging to the period 652 A.D. to 1926 A.D. The complexity in Persian Names is most acute during this period. The complexity is due to the introduction of Arabic names. A detailed set of rules devoted to rendering of names during this period is given in this book.

3 Names belonging to present period, dating from 1926 onwards, when family names were established on the same basis as in Western countries. This does not present any problem, as the rendering is similar to Western names. In addition to family names every one was required to take a forename. Thus in the structure of modern Persian names, forenames come first, followed by family names.

4 STRUCTURE

The main problem in the rendering of Persian names, therefore, pertain to names belonging to the period 652 A.D. to 1926 A.D. The structure of the Persian names of this period is analysed as follows:

1 Onvan or Khatab (title of address).

2 Konyeh (corresponds to nick name).

3 Nām or Esm (corresponds to forename).

4 Nasab (geneology).

5 Laqab (title of honour).

6 Nesbat (relative adjective).

7 Takhallas (poet's nom de plume).

These elements usually occur in this order. A name may consist of any or all these elements and sometimes contain also several names of each of these types.

5 RULES FOR ENTRY

A chapter is devoted to rules for entry. The rules for names before 652 A.D. and for names after 1926 A.D. are simple. The rules pertaining to the entry word for names of the period 652 A.D. to 1926 A.D. is given as follows:

> "Enter under the element by which the individual is most often referred to in literature and reference works, or the most distinctive element of the full name. Add the nām (given name) and the father's nam, joined together by the word of relationship. Separate the element used as entry word by a comma from what follows. Refer from other elements of the full name under which the individual may be looked for in the catalog."

Rules are also given for treatment of separate elements in Persian names, such as surnames with prefixes, surnames with suffixes, compound surnames and forenames.

A chapter is devoted to descriptive cataloguing of Persian works. A chapter is also devoted to Persian transliteration.

6 NEED FOR SYSTEMATISATION

While considering the rendering of name-of-person belonging to various cultural groups, Dr. Ranganathan, in his Classified catalogue code, analyses the structure and composition of Arabic names which is almost similar to Persian names of the period 652 A.D. to 1926 A.D. He points out that "it is no easy matter for cataloguers without special knowledge of Arabic culture to deal with names of such complexity" and recommends a systematic investigation of this problem. This has now been done by Sharify.

7 STANDARD ON SUPPLEMENT TO AUTHOR STATEMENT

The rendering of name-of-person will become easier if the recommendations given in the Indian Standard on "supplement to author statement" is implemented on the back of the title page of all books. It requires that the entry word for an author should be printed in a dominant type face and the secondary element consisting of the rest of the words in the name should be clearly indicated. This will considerably simplify rendering of name-of-person without any need for knowing the cultural and social background, and secure uniformity in cataloguing at international level.

CENTRAL LIBRARY. UNIVERSITY

Paper J

NATURAL, CLASSIFICATORY AND MACHINE LANGUAGES

DEPTH CLASSIFICATION 34

S R RANGANATHAN

The inefficiency of natural language in several spheres is pointed out. Describes the trend to design a special artificial language for each purpose. The purposes of classificatory and machine languages are stated. After tracing the different stages in the development of classificatory language, the postulational approach of the latest stage is demonstrated. Traces the development of machine language. Recommends the use of classificatory language as bridge language in passing from natural language to machine language, whether the latter is used for literature search or for correlation.

Terminology: The classificatory technical terms used in this paper will be found defined in my Library classification glossary, (Annals of library science, 5, 1958, 65-112).

1 NATURAL LANGUAGE

A natural language is one current among a community. The term 'natural' is rather misleading. It passes current only under terrible social pressure. This pressure begins to act on an individual shortly after birth. It continously increases in intensity. There is no escaping it. It soon enters the sphere of reflex action. Every language has had a casual growth. It has not been developed according to a plan. It proves sufficient at the vegatative level of life.

11 Business Intercourse

It is inefficient and even misleading at higher levels of intercourse. In political, business, and other civil relations, it often does havoc. Rules of interpretation have come into existence to resolve its ambiguities. Courts of Law, the profession of advocates and the lure of politics drain away the best of intellects, on account of the inefficiency of natural language. But there appears to be no substitute for it in the sphere of these purposes. The professions falling within the sphere of the Natural Sciences and their applications seek to attain efficiency by creating their own respective technical terminologies. A jargon made of such a terminology is not a natural language.

12 Communication of Sublime Experience

A natural language is totally inadequate for the correct communication of sublime experience. Every poet and every mystic has experienced this. Goethe had stated it explicitly. According to him, a divine language is needed to communicate a poet's experience. But it has not yet been found. The mystic denies its ever being found. Therefore he speaks of the "eloquence of silence".

13 Representation of Phenomena

A verbal description of a phenomenon often clouds communication. The essence gets hidden. Artificial languages of diagrams, histograms, and graphs have been developed for this purpose. Chemical formulae too form such an artificial language. The language of histograms, for example, makes comparative study easy. The language of graphs has greater potency. Its break-even-point, for example, lays bare readily the solution of several problems in financial management, metallurgy, and physics. The language of chemical formulae helps in thinking also. The bonds and the forms of the ring lead to the synthesis of alkaloids and other compounds.

14 Mechanisation of Thinking

The artificial languages of General Semantics and Mathematics are developed to a high degree of efficiency for mechanising the process of thinking. They minimise the incidence of flaws and fallacy. They disclose all the implications of a proposition. They mechanise the making of inferences, without the direct incidence of intellect at every step, except in conforming to the rules of inference laid down by the intellect, once for all before the process of inference begins. In the mathematical language, cardinal numbers and their properties have played a great part. Of late topology and matrices enable mathematical language to prove efficient in mechanising non-quantitative thinking also.

15 Meta Language

The development of any artifical language has to use a natural language as meta-language. In relation to it, the artificial language becomes object language. By using one artificial language as meta-language, it may be possible to develop another artificial language of greater efficiency in a particular field or for a particular purpose. In this way, a chain of articifal languages of increasing efficiency can be developed. For example, with a natural language as meta language, an artificial classificatory language can be developed for a helpful arrangement of entities in a store. Using a classificatory language as meta language, an artificial machine language can be developed for retrieval of entries in a list.

2 CLASSIFICATORY LANGUAGE

Arranging a set of entities in a store alphabetically by their names in a natural language seldom produces a helpful sequence. It is definitely unhelpful in the case of documents embodying thought-blocks or subjects and or entries representing them in a list. Subjects have to be named in an artificial language of ordinal numbers. For, it is just the purpose of ordinal numbers to mechanise a preferred arrangement, without the direct incidence of the intellect at every step, except in conforming to the rules of arranging them, laid down by the intellect once for all before the process of arranging or maintaining the arrangement begins.

21 Generalised Ordinal Numbers

The digits, or primary symbols each complete in itself, found in a set of conventional symbols, can be used as base for a classificatory language. Digits belonging to different conventional sets can also be used together, to form the base. Each digit in it is a simple ordinal number. Ordinal numbers of varying degrees of complexity can be built with simple ordinal numbers. The base is generally drawn from one or more of the conventional groups of Indo-Arabic numerals, letters of any alphabet, punctuation marks, and mathematical symbols. Each scheme of classification defines their ordinal values in its own way.

3 MACHINE LANGUAGE

Machine language has been in use for some time to mechanise calculating, and even thinking to some extent. It is just now being developed for the rapid retrieval of entries of documents; such language is not made of phonetic symbols or of other written symbols. It is made of mechanical bits such as positioned punches and magnetic. spots. Electronic manipulation of them gives speed in retrieval. The intellectual work is done once for all in providing circuits before the process of retrieval begins. There is a moot point here. Is it economical to translate directly from natural language to machine language? Or is it an advantage to use a classificatory language as a bridge between the two? Some light is thrown on these questions by the parallalism between the emergence and development of classificatory and machine languages.

4 STAGES IN LIBRARY

41 Stage 1: Alphabetical Arrangement

At stage 1, the number of books in a library was small. Alphabetical arrangement by the names of authors in natural language was sufficiently helpful.

42 Stage 2: Arrangement in Subject Groups

At stage 2, the number of books became too large for all-through alphabetical arrangement by names of authors. Books had first to be grouped into a few subjects. Alphabetical arrangement within each subject-group was allowed. And the subject-groups themselves were arranged alphabetically by their names.

43 Stage 3: Enumerative Classification

At stage 3, the number of books increased further. The number of subject-groups had to be increased. The Laws of Library Science made us see the need for arranging the subject-groups in a filiatory sequence. For their alphabetical sequence was not equally helpful. The mechanisation of non-alphabetical sequence called for class numbers. An all through enumerative classification proved insufficient.

44 Stage 4: Analytico-Synthetic Classification

At stage 4, the number of books has reached the order of hundreds of thousands in many libraries and of millions in a few. This implies increase in number of subjects. Result: Classification has to be minute. It has to be too minute for all-through enumeration, even with decimal numbers. Faceted class number has become necessary. Enumeration has to be confined to the isolates in each facet. Classification has to be analytico-synthetic. In other words, the subject of a book has first to be analysed into its basic class and isolates. Then the basic numbers and the isolate numbers have to be synthesised into the class number of the book. This method of constructing class number makes it co-extensive with the subject of the book. It is further found helpful to make the class number expressive of each facet of the subject and to make the isolate number in each facet co-extensive with the isolate idea forming the focus in it.

45 Stage 5: Postulational Approach

We are just entering in stage 5. Documentation has now become common. Micro documents have to be classified. Their entries have to be arranged in a helpful, filiatory sequence. A million micro documents come out every year. Many of them embody new micro subjects. It is impracticable to make a schedule for them in anticipation. It is tantalysing to choose consistently one of the several millions of the possible sequences of them. Even the choice of the sequence has therefore to be mechanised. This has been made possible by postulational approach to classification. In this approach, work in the idea plane, the verbal plane, and the notational plane is each based on a respective set of postulates. A definite procedure of seven steps is prescribed. The postulates and the associated principles are such that the resulting class numbers throw the subjects in a helpful filiatory sequence, in a consistent way.

5 STEPS IN CLASSIFICATION

There are 7 steps to be followed for classifying a document without phase relations. The various steps in classifying from the raw title are given as under:

1 making the title expressive,

2 inserting the kernel terms along with their auxiliaries,

3 analysing the title by indicating the fundamental category to which each term belongs,

4 transposing the terms in the title in the sequence of the facet formula,

5 giving the title in standard facet formula,

6 reducing the title to facet numbers, and

7 giving the class number.

An illustration of the 7 steps prescribed for classifying a document is given in section 62 of the article Classification and retrieval by Ranganathan (An lib sc 6, 1959, 39-41).

6 MACHINE LANGUAGE

61 Arbitrary Coding

In the first stage, machine language made full use of the permissibility of random arrangement in storage for machine search. Each subject was coded arbitrarily in the sequence of its being taken up for coding. The code gave only extensional name to a subject. It was not expressive of any of the facets of the subject. It mattered little even if the term denoting the subject in the natural language was multiworded. This worked well with a small number of entries.

62 Prior Formation of Subject-Groups

But as the entries increased in number, it was uneconomical to make the machine scan, the whole range of entries. The entries had to be sorted out into a few subject-groups. Arbitrary coding was continued within each subject group. There was thus little use of the discipline of classification.

63 Expressive Coding

The number of subject-groups had to be increased with the increase of subjects. This made the need for the discipline of classification felt. The value of replacing purely extensional code symbol by expressive code symbol was also felt. It was found to be more convenient to translate the name of a subject first into classificatory language and then translate the class number into machine language. Whether one goes the whole hog this way or not, analysis of the name of the subject into its basic and isolate terms was found necessary.

64 Babel of Tongues

To denote a given isolate idea, different terms are naturally used in different languages. Different terms are used also in one and the same language. But it is more helpful and convenient to use a single code symbol in machine language for the same isolate idea irrespective of the different terms used to denote it in natural languages. Again the same isolate idea, occurring in the context of different subjects, is denoted by different terms in natural language. It is more helpful and convenient to use a single code-symbol in the machine language for the same isolate idea irrespective of the subject of its occurrence.

65 Bridge Language

A classificatory language has to satisfy similar conditions, to fulfil its various uses including storage and retrieval. All the uses are listed in my section 06 of my Postulational approach to classification, (Annals of library science, 5, 1958, 33-51). To satisfy them, it bases itself on three Canons of Mnenomics - Canon of Alphabetical Mnemonics, Canon of Scheduled Mnemonics, and Canon of Seminal Mnemonics. The translation of the isolate terms from natural language to classificatory language is a by-product of the classification of the subject of the document by facet analysis. This has to be done by a well-trained classifier. It is more economical to make the machine translate this by-product of isolate number into the code symbol of the machine language than to make facet analysis independently and translated directly from natural language. In other words, it is more economical to use classificatory language as bridge language between natural language and machine language.

7 MACHINE CORRELATION

Machine can be used not only for literature search, but also for search of entities having a combination of specified properties or values. This is of great importance in modern technology. For example, a substance may be required having a density, hardness, thermal conduvtivity, electrical conductivity etc. falling each within a specified range. To do it from memory or by looking through the tables for various properties is laborious. On the other hand, machine correlation is possible, that is, the search for each a substance can be made by machine. An entrry is to be made for each entity. The entry is to give all its properties. Then the names of these properties are to be translated into machine language. It will be more convenient for the classifier to translate the properties into isolate numbers and a machine to translate the isolate numbers into machine language. In other words, this translation also is best done using classificatory language as the bridge language.

Paper K

SPANISH PRESENT DAY OFFICIAL PUBLICATIONS

NOTES ON BIBLIOGRAPHICAL SOURCES

JAMES B CHILDS
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Indicates the bibliographical sources of Spanish official publications such as monthly classified record of books, copy-right lists, serial publications, directory of official agencies. Mentions the lack of overall co-ordination. Enumerates the publications issued by various Government agencies. Traces the importance of Government publications and the need for proper bibliographic control.

1 PRESENT POSITION

An attempt in print at a comprehensive statement relating to Spanish official publications appears on pages 179-181 of A study of current bibliographies of national official publications, edited by Jean Meyriat for the International Committee for Social Sciences Documentation and published by UNESCO in Paris at the beginning of 1958 as no. 7 in the UNESCO Bibliographical handbooks series. The following quotations from the statement in free translation from French seem to represent a reasonable impression of the problems involved:

> "The reproduction of most official publications is entrusted to various private printing establishments. Certain ministries and agencies ... operate their own printing facilities. Publication and sale of government publications is not centralized. .... Numerous agencies issue lists of their own publications. There is no general bibliography of official publications. .... All publications [not having personal authors] are registered in the general bibliographies under titles as anonymous entries."

The above together with information gleaned during a considerable survey at the Library of Congress of Spanish official publications for the period from mid-1936 to 1955[1] and added to subsequently serves as a basis for the following observations, which may have not only specific and special application but may contain some general guidance in the appraisal and use of official publications wherever the bibliographical control seems rather meager and inexact.

2 CORPORATE ENTRY: SPANISH CODE

In Spanish libraries under state control and supervision, official publications, not having an individual author, initially received attention for treatment under corporate entry in the second edition (1941) of the Spanish official cataloging code[2] as may be noted in the following quotation in free translation from Spanish from the preface (p. VI-VII): "For the first time there appears in the instructions a chapter devoted to the publications of agencies and corporations, both official and private, authorizing henceforth the consideration of collective authorship and differentiating these from anonymous works proper. The great number of works of this character existing in libraries and the convenience of collecting them under the heading of the agency responsible for the publication to facilitate use of the catalog has been the motivation for fifteen general rules, susceptible of subsequent elaboration. .... ." In the new section[3] the following seems to be the form of entry preferred for official agencies:

DIRECCION GENERAL DE BELLAS ARTES. España.

MINISTERIO DE EDUCACION NACIONAL. España.

The basic rule (no. 117, p. 70) reads in free translation as follows:

> "The publications of agencies and corporations which are the result of their own activities such as 'boletines, anuarios, actas, memorias, informes, dictámenes, notas, proyectos, estatutos, reglamentos, instrucciones, listas, catálogos, inventarios, estadísticas, presupuestos, cuentas, balances,' and other works are to be considered as edited by said agencies, these being considered as the real authors."

21 Treatment as Anonymous Works

Nevertheless, rule 126 (p. 77-78) still continues treatment of a specific group of official publications as anonymous works under title as follows (in free English translation):

> "Certain special classes of publications which emanate directly from the central administration of the State or from parliaments, such as political constitutions of countries, collections of laws, single laws, decrees, orders, regulations, ordinances, instructions, grants, corporate charters, privileges, etc., sometimes including the name of the responsible agency or official corporation and sometimes not."

22 List of Headings for Official Spanish Agencies:

In keeping with the new provisions of the official cataloging code, the list of about a thousand headings for present-day official Spanish agencies prepared by Doña Angela García Rives and Doña María Poves Bárcenas of the Biblioteca Nacional at Madrid for use in the catalog of Spanish libraries[4], seems eloquent evidence of the problem created by the increasing representation of official publications in the libraries of Spain. At the same time, it would seem to be evidence of a very considerable and increasing body of official publications being issued and published by the various ministries and other instrumentalities of the Government of Spain, to which no overall record exists currently or retrospectively.

3 SOURCES

31 Monthly Classified Record

The monthly classified record of books in the book trade published by the Instituto Nacional del Libro Español in the periodical entitled El Libro español,[5] although including regularly some official publications, makes no perceptible use of corporate entries and does not index in any way by agency.

32 Copyright Lists

At the same time, the monthly Boletín del depósito legal de obras impresas, which began publication under the Dirección de Archivos y Bibliotecas with April 1958, is arranged in classified order and seems to include official publications, the entries being according to the official code, yet there being no indexing by agency. The requirement for deposit includes not only books, pamphlets, periodicals, music, maps, films, prints, recordings, picture postcards, but does not specify particularly official publications.

33 Serial Publications

For serial publications in particular, volume 2 (Revistas) of Año III (1954) of the Anuario de la prensa española, edited by the Dirección General de la Presna, discloses through careful scanning of the various sections of the classification nearly two hundred titles that seem to be identified as emanating from various agencies of the national government. The brief section "Administración Central," on pages 276-279, includes only official publications and has but twelve titles. There is no indexing by ministry or other agency. Although volume 1 (Diarios) of Año IV (1956) has been seen, no copy of a corresponding volume 2 has been available.

34 Directory of Official Agencies

Turning next to pinpointing and identification of official agencies, the F.A.C. (Fichero de altos cargos), a directory published on cards 10 x 15 cm. by Angel Estirado Pérez, Mañuel Cortina 10, Madrid, and kept up to date monthly by reprinting the cards as changes occur, is arranged in the following order: Jefatura del Estado (including Cortes, F.E.T. y de las J.O.N.S.), Presidencia del Gobierno, ministries in alphabetical order, banca, otros organismos, and datos de interés general. The F. A. C. gives citations to laws organizing agencies and lists the principal officials, but does not list official publications. Likewise, the Anuario general de España (Bailly-Baillière-Riera), published at Barcelona by "Anuarios Bailly-Baillière y Riera Reunidos," Sociedad Anónima, includes a directory of the Spanish National Government at the beginning of volume 1, but does not list official publications. Neither did the annual Guía oficial de Espana which began in 1722, and ceased publication with 1930, ever attempt to list official publications.

35 Annual National Budget

In the annual national budget, issued by Ministerio de Hacienda under the title Presupuestos generales del Estado para el ejercicio económico, there are to some extent under the ministries, the general bureaus, and other agencies occasional items allocated to the preparation and printing and distribution of official publications. At times there are mentions of specific titles. Yet, nowhere under any of the ministries or elsewhere does there seem to be mention of general government press or system of government presses or overall plan for the printing, publication, sale, and distribution of official publications. In the use of the budget, it must be borne in mind that the law of December 18, 1950, provided that the budgets be enacted for biennial period, the volume for the first or even year being the full executive budget and that for the second or odd year being only for additional and amendatory items. Also, there has been regularly a supplementary budget in separate form entitled Presupuestos de los organismos autónomos para el ejercicio económico, and these autonomous agencies would need to be taken into account to help obtain a full picture of the situation.

4 LACK OF OVERALL COORDINATION

A Secretaria General Técnica de la Presidencia del Gobierno was created as a general administrative department by decree of December 20, 1956, has been accompanied by the development of similar agencies in the various ministries, but seems not yet to have come to grips with the problems of official publications. In the very illuminating administrative charts of the various ministries accompanying most monthly numbers of its Documentación administrativa beginning with January 1958, it is possible to secure a visual impression of their organization and ramifications, with the direct agencies, the dependent agencies, and the autonomous agencies.

41 Value of Official Publications

Indeed, emphasis for many official publications, other than those of general cultural value, and of legal, historical, statistical, and scientific character, would seem to be upon their value for the legislator, the government official, the agencies, and for those cooperating with them or affected by their actions, as it still seems to be in many other countries.

5 GOVERNMENT AGENCIES

Since as stated in Meyriat's Study and as specified above, there now seem to be no overall source for current bibliographical information for the apparently very considerable and important body of Spanish official publications, it will be useful to consider the various agencies in the following administrative order to ascertain what bibliographical sources may be revealed:

Jefatura del Estado,
Presidencia del Gobierno,
Ministerio del Agricultura,
Ministerio del Aire,
Ministerio de Asuntos Exteriores,
Ministerio de Comercio,
Ministerio de Educación Nacional,
Ministerio de Ejército,
Ministerio de Gobernación,

Ministerio de Hacienda,
Ministerio de Industria,
Ministerio de Información y Turismo,
Ministerio de Justicia,
Ministerio de Marina,
Ministerio de Obras Públicas,
Ministerio de Trabajo, and
Ministerio de Vivienda.

51 Jefatura del Estado

Under the Jefatura del Estado are included the Consejo del Reino, the Cortes Españoles, the the Consejo Nacional, the Instituto de Estudios Políticos, which by law of September 9, 1939, took over the Library of the former Senate and the Secretaría Técnica of the former Congreso de los Diputados as a body to study and investigate "con criterio politico y rigor cientifico los problemas y manifestaciones de la vida administrativa, económico, social e internacional de la Patria," is the only one of these publishing extensively. In 1946 appeared a 207-page descriptive catalog under the title Ediciones del Instituto de Estudios Políticos, and in the spring of 1954, a 16-page list of publications in print entitled Catálogo de ediciones y publicaciones, and currently apparently a monthly Boletin editorial. The Movimiento which refers to the Falange Española Tradicionalista y de las J. O. N. S. (often referred to simply as FET y JONS) with its elaborate party administrative apparatus and probably extensive publications is not here referred to further.

52 Presidència del Gobierno

The Presidencia del Gobierno includes supervision over a number of non-ministerial agencies, among them being the Consejo de Estado, the Alto Estado Mayor, the Consejo de Economía Nacional, Consejo Superior Geográfico, Consejo Superior de Estadística, the Dirección General de Plazas y Provincias Africanas, the Instituto Geográfico y Catastral, the Instituto Nacional de Estadística, the Secretaría General para la Ordenación Económico-Social, the Secretaría General Técnica, etc. Of these agencies, the Consejo Superior Geográfico, serving as the national coordinating agency for official mapping work, includes in its annual Memoria general[b] lists of the maps and related publications issued during the year by each of the mapping agencies. Further, the Instituto Geográfico y Catastral, which has special facilities for map printing and frequently does such work for other agencies, issued in 1948 a 315-page Catálogo de publicaciones, including many before 1936, maps as well as other works. Still further, the Instituto Nacional de Estadística, the central official statistical office, makes available from time to time a brief Catálogo de publicaciones, and issued in 1947-1952, a two-volume Catálogo de la Biblioteca, with a supplement in 1951. Volume 2 (566 p) includes the statistical publications and is classified, with the Spanish titles normally presented at the beginning of each section, listed under the name of the agency. On the centenary of Spanish statistics in 1956, the Instituto compiled a chronological record (202 p.) as complete as possible of all Spanish statistical publications, under the title Publicaciones estadísticas de España, being mainly official publications. At one time, the Dirección General de Marruecos y Colonias (now Plazas y Provincias Africanas), which is in close relationship with the Instituto de Estudios Africanas, issued a small list of publications placed on sale. In 1959, the Secretaría General Técnica edited through the Boletín oficial del Estado a 29-page Catalogo general de obras, publicaciones, 1958-1959. This seems to complete the record for agencies under the Presidencia del Gobierno.

53 Ministerio de Agricultura

Turning next to the ministries, the Ministerio de Agricultura issues its general publications through the Sección de Capacitación of the Dirección General de Coordinación, Crédito y Capacitación Agraria, places them on sale through the Librería Agrícola, Fernando VI, 2, Madrid, and has made available a 24-page catalog entitled Publicaciones agrícolas: Catálogo 1956. Beginning in 1948, the quarterly Boletin bibliografico agricola of the Ministry contains from time to time statements about publications emanating from various branches and institutions of the Ministry. In 1949, the Instituto Nacional de Investigaciones Agronomicas, centralizing for considerable part and coordinating the research activities of the Ministry, prepared a 47-page Catalogo de publicaciones for distribution at the Feria del Libro in Madrid.

54 Ministerio del Aire

For the Ministerio del Aire, there seem to be no general lists of publications. The Servicio Meteorológico Nacional, the Spanish Weather Bureau, under the Ministry, regularly includes on the covers of the Boletin mensual meteorológico a listing of the Weather Bureau publications.

55 Ministerio de Asuntos Exteriores

Under the Ministerio de Asuntos Exteriores, it may be mentioned that the 9-volume Catálogo, de la Biblioteca, 1941-48, does not focus attention upon the publications of the Ministry as a separate unit. In 1951, the Dirección General de Relaciones Culturales made available a 16-page list entitled Publicaciones de la Dirección General de Relaciones Cultùrales. Further, the Instituto de Cultura Hispanica, the other agency in connection with the Ministry having a considerable publishing program, issued in 1949 a 24-page Catálogo de publicaciones, and through its publishing affiliate Ediciones Cultura Hispánica issued in 1953 a 31-page catalog and in 1955 a 62-page catalog.

56 Ministerio de Comercio

The Ministerio de Comercio, separated from the Ministerio de Industria y Comercio in 1951, is included in the catalog prepared by the Comision de Enlace de Publicaciones de los Ministerios de Industria y Comercio and issued from time to time under the title Ministerios de Industria y de Comercio: Catálogo de las publicaciones editadas por los diferentes servicios de ambos departamentos, the edition of 1956 having 77 pages. Some five or six editions of the catalog had been issued before the division in 1951.

57 Ministerio de Educación Nacional

For the Ministerio de Educacion Nacional, the Servicio de Publicaciones was established in 1952 to have charge of printing, publishing, and distribution of official publications of the Ministry proper, and announced in the middle of 1952 the imminent appearance of a catalog of the publications of the Ministry proper and of the Direcciones Generales. Finally as of 1958, the Ministerio de Educación Nacional has made available the long-announced 187-page Catálogo de publicaciones. The arrangement is by bureaus and other agencies as follows: Comisaría de Extensión Cultural, Dirección General de Archivos y Bibliotecas, Dirección General de Bellas Artes, Direccion General de Enseñanza Laboral, Direccion General de Ensenanza Media, Direccion General de Ensenanza Primaria y Junta Nacional contra el Analfabetismo, Direccion General de Ensenanza Tecnica, Instituto de Formacion de Profesorado de Ensenanza Laboral, Secretaria General Tecnica, Seccion de Publicaciones, Secretaria de la Junta Central de Formacion Profesional Industrial. To facilitate acquisition, the address of each agency is given. The catalog constitutes number 22 of the series of the "Primer Centenario del Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos, 1858-1958."

The Catalogo de la Biblioteca for the Library of the Ministry, distributed in loose-leaf form beginning with 1944, does not include the publications of the Ministry as a separate class. Aside from the many individual institutions and organizations connected with the Ministry, only two services can be mentioned further.

Under the date of 1958, the Dirección General de Archivos y Bibliotecas of Spain has edited a classified Catálogo de publicaciones (154 p.), listing 522 official publications of the Spanish archives and libraries. For the most part, these publications represent the work of the professional staff belonging to the Cuerpo Facultativo de Archiveros, Bibliotecarios y Arqueólogos. In honor of the centenary of the Cuerpo, the Junta Técnica de Archivos, Bibliotecas y Museos, which is the executive body of and for the Cuerpo, has embarked upon a a special series entitled "Ediciones conmemorativas del Centenario del Cuerpo Facultativo, 1858-1958," and has included the Catálogo de publicaciones de la Dirección General de Archivos y Bibliotecas as number XXII. In its monthly Boletin, the Directorate General pays particular attention to its publications as well as of those of the services and institutions functioning under it. The bibliography of the work of the Cuerpo itself, as of 1946, is contained on pages III-XIII of Cuerpo facultativo de archiveros, bibliotecarios y arqueologos: Bibliografia y personal (XVII, 105 p.), edited in 1946 by the Junta Técnica de Archivos, Bibliotecas y Museos.

The Consejo Superior de Investigaciones Cientificas, the national organization for the promotion of most research, with about 145 institutes and centers, opened in 1950 a central sales office for its publications under the name Libreriá Cientifica Medinaceli, Duque de Medinaceli 4, Madrid. The CSIC had in 1949 a 140-page Catálogo, with a supplement 1949-53, kept up to date by the Boletin bibliográfico. In 1955 appeared a 46-page Catálogo de revistas, and for the Feria del Libro, Madrid, 1956, a 20-page catalog entitled Novedades, Abril 1955-Abril 1956.

58 Ministerio de Ejército

Under the Ministerio de Ejército, there is an official publishing house or service called sometimes Editorial Ejército and sometimes Ediciones Ejército, but no catalog or list of publications has been seen.

591 Ministerio de la Gobernacion

Under the Ministerio de la Gobernación, which has control over local government, public health, communication services, etc., the various agencies each seem to have their own publishing facilities, and there seems to be little evidence of any systematic listing.

592 Ministerio de Hacienda

For the Ministerio de Hacienda the only source is the Catálogo de la Biblioteca Central, 699 pages for the approximately 13,000 volume central library of the Ministerio de Hacienda, prepared by Antonic Matilla Tascón, Carmen Nieto, and Elisa Parra, issued late in 1955. The arrangement of the more than 8,000 entries is by the Universal Decimal Classification, with indexes to persons and to topics. The catalog itself reflects the various interests of the Ministry of Finance, including its official publications and should be helpful for bibliographical suggestions to the one working seriously in any of the fields covered by that Ministry.

593 Ministerio de Industria

For the Ministerio de Industria, reference may be made to the statement under the Ministerio de Comercio. For the Instituto Geológico y Minero, not included in the joint catalog, a 366-page analytical Catálogo de publicaciones, prepared by José Meseguer Pardo appeared in 1947, and a supplementary list in 1952. Each year in the two series of statistical publications of the Comisión para la Distributión del Carbón is a retrospective list of the publications for the Commission and its predecessor agencies. The Escuela de Minas also has a separate list.

594 Ministerio de Informacion y Turismo

Under the Ministerio de Informacion y Turoismo, the Dirección General de Informacion has supervision over the official Editora Nacional, created in 1937 to publish material according to the principles of the National Movement, which has available as of 1955 a 102-page Catálogo de publicaciones, including only those in print. A list of the publications of the Dirección General itself for the years 1946-47 (31 p.) was printed with the Revista Nacional de educación, number 30. Sometimes the Dirección General uses the designation "Publicaciones Nacionales," but whether in the sense of a separate publishing house seems uncertain. For the Feria del Libro, 1945, in Madrid, the Instituto Nacional del Libro Español, the center for the current national bibliography, issued an 8-page Catálogo of its publications.

595 Ministerio de Justicia

For the Ministerio de Justicia, a small Catálogo de publicaciones of 133 pages was prepared for distribution at the Feria del Libro in 1951. In 1956 appeared the 17-page Catálogo de publicaciones of the Institute Nacional de Estudios Juridicos, which functions also in connection with the Consejo Superior de Investigaciones Científicas.

596 Ministerio de Marina

Under the Ministerio de Marina, there is the official Editorial Marina, but no lists or catalogs have been seen. At Cadiz, the Instituto Hidrográfico de la Marina, the National Hydrographic Office, issues from time to time a catalog of its mariner's charts and related publications which are reproduced in its own plant.

597 Ministerio de Obras Públicas

For the Ministerio de Obras Públicas, little information as to publications seems to be available, even though the Ministry has supervision over RENFE, the Spanish State Railways.

598 Ministerio de Trabajo

For the Ministerio de Trabajo, there seems to be rather meager mention of its official publications in its monthly Revista de trabajo, even though the bibliographical section is prepared in the library of the Ministry. In 1948 a 12-page list was issued under the title Publicaciones de la Seccion de Estudios y de la Escuela Social. In 1949, the Instituto Nacional de Previsión, the national social security administration, issued a 255-page Catálogo de publicaciones, covering its 41 years of activity with a numerical as well as a topical arrangement, and replacing various earlier lists.

5991 Ministerio de Vivienda

The Ministerio de Vivienda was established in 1957, and no information as to publications has been observed.

6 CONCLUSION

In conclusion, it is seen that in a period of about forty years the increasing presence of Spanish official publications in the national libraries and in those under national supervision has been such as to bring recognition of the utility of a form of corporate entry in the official cataloging code. The pressure apparently accumulated without any overall control of distribution and provision for deposit in libraries. At the same time, the national bibliography seems not to have been able to do too much with collecting and recording the increasing number of official publications, the prime responsibility being to cover books in the book trade. The annual Feria del Libro in Madrid seems to have been one means of focussing some attention on the problem, for eliciting some exhibits from various official agencies, and for stimulating the preparation of some catalogs of publications. Beyond that, certain other factors have come into play. The record has been eked out here and there. An understanding is being aroused in the vary considerable array of data in many fields, some of it of immediate and pressing interest, that is being brought forth by modern government, in this case Spain, in meeting the needs for national survival in the present world. The next step in Spain may well show some further progress towards making the data in official publications available by striving toward overall bibliographical control. And, further progress may point the way towards the utility of making similar surveys in other countries, elaborating the data accumulated and presented by Meyriat. These would help to establish comprehension and understanding of the increasingly complex governments of the present-day and their ever more intricate publications.

1 Still unpublished. A microfilm made from a carbon copy may be purchased for $10.00 from the Photoduplication Service, Library of Congress, Washington 25, D.C.

2 Spain. Junta técnica de archivos bibliotecas y museos. Instrucciones para la redacción del catálogo alfabético de autores y obras anónimas en las bibliotecas públicas del Estado dirigidas por el Cuerpo facultativo de archiveros, bibliotecarios y arqueólogos. Madrid

[Dirección general de archivos y bibliotecas], 1941. xi, 210 p. The first edition was in 1902.

3 Publicaciones de Entidades. Rules 117-131, p. 70-80.

4 "Ponencia, núm, 64" printed in the *Actas y Ponencias* of the I. Congreso Iberoamericano y Filipino de Archivos, Bibliotecas y Propiedad Intelectual, Madrid, Oct.-Nov. 1952, vol. 2, p. 478-538.

5 Previous to 1958: *Bibliografia hispanica.*

6 Series of such annual reports, which might include regularly a statement of the official publications are not too common, and seem never to be issued by the ministries.

Paper I

NAME OF PERSON

S R RANGANATHAN

Points out the importance of Name-of-Person for use in catalogue entries. Discusses its features such as, the number of words in it, their grammatical nature, their functions, their sequence, their relative potency, the complexities in their structure etc. Suggests the listing of Name-of-Persons in each social group to facilitate cataloguing easy. Adoption of Indian Standard IS:743-1956 for supplement to author statement as a solution for making cataloguing of modern books easy even without any need of noting the cultural background of the author.

0 INTRODUCTION

A Name-of-Person occurs in most of the entries of a library catalogue. It occurs in the Headings of entries. It also occurs in their Title-Sections. In a Heading it may occur as the name of an Author, or of a Collaborator of one kind or another, or of a person forming the subject of study, or of a person whose name forms the title of a document. It may occur in a Title-Section in any of the above ways except as name of the author. This variety of ways in which a Name-of-Person can occur increases the frequency of its occurrence in entries. A Catalogue Code has, therefore, to pay special attention to a Name-of-Person. Its features creating problems in cataloguing are:

1 the number of words in it;
2 their grammatical nature;
3 their functions;
4 their sequence;
5 their relative potency; and
6 the complexities in their structure.

1 NUMBER OF WORDS

In the far-off days, the number of persons writing books was small. Formation of homonym among names of authors was not frequent. Therefore the name of an author often consisted of one word only — such as, Valmiki, Homer and Kalidasa. However, the increase in the number of persons writing and written upon has led to many-worded Names-of-Persons. Apart from the need to have an extra word to resolve homonym, additional words began to cumulate for one reason and another. In Names-of-Persons of Arabic origin or influence, we come across the largest number of words. Is the cataloguer to retain all these words in the Headings in full? Can any of the words be removed? Can any of the words be abbreviated? Such questions arise today. An author himself reduces some of the words in his name to their initial letters. Is the cataloguer to retain them as they are? Or, is he to expand them to their full names?

2 NATURE OF THE WORDS

The essential words in a Name-of-Person are Proper Nouns. Some Names-of-Persons include also common nouns and auxiliary words, such as article, preposition, and adjective. When the language of a Name-of-Person is quite foreign to the cataloguer, it may be difficult for him to recognise the nature of the words. Modern intercourse among nations brings into a library books published in diverse languages. It will be difficult for any cataloguer to know all the languages. This causes difficulty. Can the Catalogue Code provide any aid in this matter?

3 FUNCTIONS OF THE WORDS

Some help can be formulated as we consider the functions of the words in a Name-of-Person. The Proper Nouns are irremovable.

31 Proper Noun

Some of the Proper Nouns denote the Given-Name of the person. These words are essential in the Name. One or two of the words may denote the Family-Name. It occurs in some cultural groups; and it does not occur in others.

32 Common Noun

Common Nouns may or may not occur in a Name-of-Person. If they do, they may denote some attributes of the person such as academic, civic, military, ritualistic, or other distinction, or the profession of the person or some of his dominant ancestors. They may also denote denomination by caste, creed, or religion. Some may be terms of respect. Most of these are removable. Some are irremovable attachments to the proper nouns in certain cultural groups. Can the Catalogue Code help the cataloguer of a foreign culture to distinguish between the removable and the irremovable common nouns?

33 Auxiliary Word

The auxiliary words are peculiar to certain cultural groups only. They occur between the Given-Name and the Family-Name. They are deemed irremovable.

4 SEQUENCE OF THE WORDS

Every conceivable sequence is found in a Name-of-Person among the Given-Name, the Family-Name, and the common nouns, and the auxiliary words.

The common nouns may lie at the very beginning, or at the end, or anywhere in the middle as in Buddhistic or Viet-Namese Names-of-Persons. They cannot, therefore, be spotted out in every case by their position, and removed.

In a name of Person of European, Japanese, Marathi, Gujarathi, Sindhi, Kashmiri, Bengali, Oriya, and Assamese cultural groups, the Family-Name occurs last; and the Given-Name precedes it. Of the words forming the Given-Name the one specific to the individual usually comes first; and those of father, godfather, or patron may come thereafter in European, Marathi, and Gujarathi Names.

In a Name-of-Person of Chinese, Viet-Namese, Malayalam, Kannada, and Telugu cultural groups, the Family-Name comes first and the words of the Given-Name come thereafter.

In a Name-of-Person of Tamil, Malayalam, Kannada, Telugu and Viet-Namese cultural groups, the last proper noun is usually the Name specific to the individual.

In Tamil the preceding proper nouns may be the names of father and place of birth or place of ancestors.

In a Name-of-Person of the Burmese cultural group and in some Names-of-Persons of the Hindi cultural group, the Given-Name alone occurs without any other proper nouns.

5 POTENCY OF THE WORDS

If there is any common noun in a Name-of-Person, which is an irremovable attachment, it has no potency as a result of its being a common noun. It has no claim to become the Entry Element.

Among the proper nouns, either the Family-Name, or the word in the Given-Names specific to the individual, may have greater potency than the other.

In Western, Japanese, and Chinese names, the Family-Name is drawn from a far more extensive and larger group of words than the Given-Name. The group of the former runs to many thousands, while the group of the latter does not have more than a thousand words or so. Therefore, in a Name-of-Person in those cultural groups, the Family-Name has a greater potency than the Given-Name. It has therefore, a greater right than the Given-Name to become the Entry Element.

On the other hand, in a Name-of-Person of the Viet-Namese culture, the Family-Name has to be only one out of about two hundred words. It is, therefore, not usual to make it the Entry Element.

In Thai culture, the Family-Name was brought into use only after 1916. Its number is still small. It is, therefore, not usual to make it the Entry Element.

In a Name-of-Person of Bengali culture, the Family-Name has to be drawn from a group of less than 1000 words; while the Given-Name has a very large group running to many thousands to draw from. In spite of this, the English-educated persons prefer to give the Family-Name the status of Entry Element. But there is a section of opinion in Bengal which would deny it that status.

The relative numerousness of the reservoir of Family-Names and Given-Names in the Marathi, Gujarathi, Hindi, Oriya, and Assamese cultures needs investigation, to see if the status of Entry Element given to the Family-Name satisfies the Canon of Prepotence.

Generally speaking in Indian, Burmese, Ceylonese, and Islamic cultural groups, the Given-Name has great potency. It is chosen as Entry Element in a Name-of-Person in Tamil, Malayalam, Kannada, Telugu, Burmese, Ceylonese and Islamic cultural groups.

6 COMPLEXITIES OF STRUCTURE

Compound Family-Names and Given-Names form one kind of complexity in Names-of-Persons. In some cases the components are linked by a hyphen or by a conjunction or by some other auxiliary word. In some other cases there is no such visible indication that two or more words together form a compound Family-Name or a compound Given-Name. This happens in Names-of-Persons in Bengali, Marathi, Gujarathi, Sinhalese, and the Islamic cultural groups of India and Pakistan. Can the Catalogue Code give aid to foreign cataloguers in this matter?

A Compound Family-Name among the Names of married women of some of the European cultural groups present great difficulty. It is a compound of the Family-Names of the Husband and the Wife. Their sequence varies. The connecting word also is not the same. Their claim to the status of Entry Element cannot be determined by their position alone. Can the Catalogue Code give aid to foreign cataloguers in this matter?

The auxiliary word between Given-Name and Family-Name in European cultural groups gives difficulty. In some it is deemed to go with the Family-Name and in some others with the Given-Name. Here again can the Catalogue Code give aid to foreign cataloguers?

The Names based on Arabic culture present peculiarities of their own.

7 CULTURAL IMPACT

To add to the five important problem-cases pointed out in the preceding sections as needing special aid from the Catalogue Code, more tantalising problems are created as a result of the cultural impact between different cultural groups. It leads to imitation as well as counter-imitation. The order of King Rama VI of Thailand calling for the adoption of Surnames by all his people and arranging to confer them officially was a result of his travel in Europe. But in spite of its adoption, the surnames has not been made the Entry Element. In Bengal there is conflict between Family-Names and Given-Names as a result of British contact. In Uttar-Pradesh and Punjab Family-Names came into vogue as a result of British impact. But the dropping of the Family-Name has begun in more recent years. While the Muslims of India and Pakistan do not generally go in for Family-Name, a few do so. In some places, but not in all, the Christians imitate the West. In Indonesia, the father's name is being treated as if it were Family-Name, just during the present generation. This vogue may or may not be continued. In Bengal and Uttar-Pradesh, and to a smaller degree in other areas, the Given-Name, which is a single word, is broken into two parts and written out as if they were two distinct words. — Ganesh Prasad instead of Ganeshprasad, Prithvi Nath instead of Prithvinath, Sankara Narayanan instead of Sankaranarayanan, and Vidya Bhushan instead of Vidyabhushan. As a result of British contact, some contract the former of these two parts into its initial letter and use the second part as if it were the true name by itself. In the name of Sir C V Raman, the real name should be C Venkataraman. Some abbreviate all the proper nouns into their respective initial letters and retain only the last attached common noun in full. A S P Ayyar is an example.

It should be A S Panchapakesa Ayyar. Ayyar is a common noun attached to the proper noun.

8 ILLUSORY SOLUTION

It is doubtful whether a cataloguer who is not intimately familiar with the social practices connected with the formation of a Name-of-Person in a cultural group, can successfully and consistently pick out the Entry Element and the Secondary Element respectively. The individual variations — one may almost say idiosyncrasies — in making up one's own name may baffle even a cataloguer born in the same cultural group. A word may be split into two unmeaning parts. A common noun which is only an attachment may be used as if it were a proper noun denoting either a given Name or a family Name. The greater the deviation of the cultural group of the cataloguer from that of a Name-of-Person, the greater will be the uncertainty. Till now, cataloguing involved only the names of a few cultural groups in most of the libraries. This was the result of nearly two-thirds of the people of the world being in a state of cultural exhaustion, producing few books, and consuming even fewer books by authors belonging to other cultural groups. Therefore the problem of rendering a Name-of-Person has been dealt with in a more or less light-hearted way, and there has been only a small percentage of deviations from the correct rendering. But today practically all the cultural communities of the world are entering into the ascending phase of their current cultural cycles. Creative activity has begun everywhere in the world. New thought is being created by the reviving cultural groups. They cannot be ignored by any other cultural group. The reviving cultural groups are also keen to have access to documents published in every part of the world. Modern transport conditions permit a free circulation of documents throughout the world, whatever be the cultural group of their origin. The consciousness of one world, being helped by international bodies like the United Nations and its specialised agencies, is intensifying this desire on the part of every cultural group of the world to use documents produced in every other cultural group. Moreover, the unbalancing between population pressure and the availability of natural and near-natural commodities makes it imperative that the research-potential of the world should be conserved, without any wastage due to any unwanted repetition of one and the same piece of investigation. This requires that any document on nascent thought produced in any cultural group whatever should be served unerringly to the workers in every other cultural group. In this process, the rendering of Name-of-Person will play a very important part. The impracticability of any one cultural group to render the Names-of-Persons of all other cultural groups will lead to inefficiency of service. Ultimately such an inefficiency of service will be traceable to the insolubility of the problem of Name-of-Person by cataloguing rules, however involved and however clever. Solution of the problem of rendering Names-of-Persons on a world-scale through a number of cataloguing rules is only an illusion.

9 RIGHT SOLUTION

The one person who knows the Entry Element and the Secondary Element in a Name-of-Person is the person himself. International economy and efficiency in cataloguing requires that the author should indicate in his documents the Entry Element and the Secondary Element in his name, along the lines laid down in the Indian Standard IS : 743-1956 for Supplement to Author-Statement. This is to be printed at the back of the title-page of a book or in a suitable place in any other kind of document. If this is done, the rule on the rendering of a Name-of-Person need not be anything more than the following rule:

> "If the back of the Title-of-Page of the book conforms to the Standard for Supplement to Author Statement, the Entry Element is to be the word (s) printed in a dominant type-face in the Supplement to Author Statement; the Secondary Element is to be the rest of the word (s) in it; and the further Individualising Element is to be the Year (s) mentioned in it."

With this single rule it will be more easy to secure accuracy and consistency in rendering a Name-of-Person than with the plethora of rules crowding cataloguing codes at present. This appears to be the only solution.

Paper M

BENGALEE SURNAMES

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Discusses the emergence of surnames particularly with reference to Bengali names. Gives an annotated list of derivation. A fairly exhaustive list of surnames as obtain in Bengalees in general is given for purposes of cataloguing.

0 INTRODUCTION

Surnames have probably been a common feature for some centuries in many countries. But for bibliographical purposes and for library catalogues surnames have been a knotty problem in some of the Indian States, more so in Bengal. The Western practice has been to catalogue all books under the authors' surnames followed by the initials of the forenames and in case of a single forename, it is usual to write the name in full instead of putting the initial of the forename only. This practice has several advantages for bibliographical and for library purposes as well. The practice in the East for Oriental names was generally to use the forename of the author instead of his surname. A single instance would illustrate this, e.g. William Carey, will be better known under Carey than William, whereas Bankim Chandra Chatterjee will be better known as Bankim Chandra than as Chatterjee. Similarly Ravindranath Tagore is better known in Bengal as Ravindranath though he is better known as Tagore in the Western world. In a public library in a village or town in Bengal, people will enquire about Bankim Chandra's books and not for Chatterjee's books, for Ravi Babus' books and not for Thakurs' or Tagores' books. In the post independence era there has been a tendency and perhaps a tendency in the right direction, to formulate uniform practice and to fall in with the international form. University has its advantages and it will help the foreigners to handle our bibliographies with more ease. Still there are many who oppose this and they have their reasons as well.

1 NATURE OF SURNAMES

Surnames and titles or decorations used along with the proper names - generally added at the end of the names - are either genealogical or professional. The former have been in use from generation to generation and are generally family names some of which may even have been personal names. Professional names have also been adapted as family names and are regularly used as surnames. It has been a practice for several centuries to award titles to persons who occupy positions of eminence in intelligence, learning, wealth or riches, honour etc. Persons who have rendered meritorious service to the country have also been awarded titles which have gone down from generation to generation and thus got absorbed as family names or surnames. Indian history from pre-Moghul days has shown that the ruling Hindu Kings had awarded titles on persons and families for either meritorious service to the country or for leadership in society. This practice has been followed by the Pathan and the Moghul rulers and by their successors, the British as well. Even in independent India the Presidential awards on the Republic day, like the New Years' Honours of the English Sovereigns, is just a continuation of the old practice of honouring persons for meritorious service to the country. Some of the titles awarded by the Muslim rulers have been adopted as family names and are still continuing as such from generation to generation.

2 DERIVATION

Here is a sample of an annotated list of such titular or official terms which has become surnames:

Baksi - generally signified a Pay Master. These persons used to disburse the pay of the Army and used to keep all the accounts of the land or jagirs of the Mansabdars and Jagirdars of the Military Department. The Kashmiri title of the same nomenclature may also have a similar meaning. It may be noted that this title like a host of others was bestowed irrespective of the religion of the person. Both Hindus & Moslems have this title in common, depending on the ancestors' vocation under the then ruling chief.

Bhandar Kayastha - This is a Royal Post and it was used as a title of decoration by the Hindu rulers. The Pathans & the Muslim rulers also made use of it. Generally the Royal treasury was under the charge of this dignitory.

Biswas - This was a title bestowed on persons who were reliable and had to be depended on for all the responsible work of accounts, receipts and expenditure. The Keeper of the Stores etc. were also known under the same title. This is a common surname used even in the present day by Hindus including Brhamins and Muslims alike.

Chakladar - These were the Chiefs of the Chakla. Several parganas constituted a Chakla. During the time of the Muslim rulers the country was divided into Chaklas or Circles (Chakras) hence it may mean a Circle Officer.

Chaudhuri - Signified one who was in charge of four different forces in the Army, i.e. the Fleet, the Cavalry, the Infantry and the Elephant Corps. This also indicated one who kept the accounts of the Revenue of the State. Sometimes the Zemindar or Landlord of the near-about lands on the four sides (of the Capital or of the State) was also known by this title. The Punjabi title of the same category may have a similar meaning.

Dastidar - Generally meant the Keeper of the Royal Seals. This indicated the person under whose signature or Dastkhat, a royal document was despatched.

Deshmukh - Persons who were the Chief Revenue or Police Officer of the district. They were respected like the Zamindars. The Marhati title Deshmukh may also have an allied meaning.

Haldar - Signified a lower officer of the village or an Assistant Keeper of the Accounts. (the owner of a hal or modern or current accounts (plough?)).

Hazari - The General of a thousand Army. The Marhati title of Hazare may have some similarity with this.

Khan - This indicated a class of nobility, whether of Hindus or Muslims. The Muslim rulers of Gaud or old Bengal awarded this title to the Hindu Generals in the Army. Khan Sahib indicated additional honour. This title was also bestowed for meritorious public work.

Kanungo - Derived from Arabic Quanun or Laws. One who is Master of the Laws. This generally indicated a Revenue Officer. The Officer who is to keep a record of all accounts about the land, its revenue collection, price of the land, ownership, transfer etc. In days prior to Todar Mulls' reign, these officers had more powers. Settlement Officers in Bengal are generally known even in the present day as Kanungos or Quanungos.

Khasnovis - Generally signifies a Private Secretary, a Clerk or an Accounts Officer.

Krori - Signified persons who would collect revenue to the extent of one kror (crore or one hundred lakh) dam. (40 dams is equal to One Rupee).

Laskar - This was a title conferred on fit persons in the Army.

Mandal - The Chief of the village. Sometimes this designation meant the person who as a Representative of the Zemindar (Landlord) used to distribute land and collect the revenue also. This title is in vogue in the present day both among Hindus and Muslims.

Mir-vahar - Generally signified the Chief of the Fleet or the Admiral of the Fleet. Sometimes the Collector of Custom was also designed by this term.

Mullick - During the rule of the Pathan Kings, noble men of the Court who were awarded jagirs or zemandaries were decorated with this title. The Punjabi title Malik may be akin to this.

Majumdar - These persons were employed under the Chief Administrators to keep the accounts of the revenue receipts and arrangements etc. They were also required to check the revenue receipts of the Zemindars. This is a common title in the present day.

Munshi - Generally signified a Secreatry. These people used to note down the dispositions in the law courts and did other secretarial work or writing work. This is also a very common title in the United Province or Uttar Pradesh and other parts of North India.

Munsiff - It generally implied a person employed by the Landlords to inspect the lands. The present service of Munsiffs in Bengal signify the cadre of Judicial Officers below the rank of Sub-ordinate Judge.

Mustafi - Persons in charge of the Civil Record Office. They used to examine the Civil Revenue Accounts.

Ohdedar - These were persons employed by the Sovereign to realise the revenue from the Zemindars or Landlords, when they failed to pay their dues to the State. Many a Ohdedar unsurped Zemandaries.

Patranavis - The person who controlled the Correspondence Department of the State. They were a class of Officers akin to those of a Secratariate.

Poddar or Fotadar - These were people who used to examine the coins (money). In the present day, this signifies a money changer and sometimes one who deals in money and jewels.

Pur Kayastha - This is an old Hindu title generally awarded to the Chief Writer of the Ruler or Kind. (Kayastha is a Writer of Records, Pura is Chief.).

Ray, Rajan, Roy - In the days of the Nawabs, these titles signified the honour of having a thousand soldiers under them.

Ray Bahadur - Those who weilded an army of three thousand strong were thus decorated. In the British days, this title indicated respectability. Hindus were decorated with Ray Bahadur and Muslims with Khan Bahadur titles.

Ray-Rayan (King of Kings) - The Chief Hindu Officer in the civil side under the Bengal Nawabs were thus decorated. The early British rulers also made use of this title upto 1772 A.D.

Samaddar - This title denoted persons who were employed by the Government or the Zemindars (Landlords) to inspect and supervise the cultivation in the districts and also to settle the disputes amongst the cultivators.

Sarkar - The Chief person in the village. This is a heriditary title and is common in the modern times though the family may not be holding the former position at all. Sometimes the same title denotes a professional class such as a clerk or one who keeps the accounts as well.

Serkhel or Sena Sarkhel - This title signified a General or a Senapati in the army. It is a heriditary title though none of the present users of the title have anything to do with the army as such.

Sikdar - They were persons entrusted to realise the revenue of the smaller areas of the State or Zemindari. In the Moghul times the Officers of the Provincial Chiefs were known as Sikdars.

Singh - Officers of the Army were thus decorated.

Tarafdar - This signified the owner of a portion or taraf of a pargana. These persons had to maintain the peace and collect the revenue of the taraf or portion of the pargana in their charge. Hence the lord of a portion of a village also had this title.

Upadhyaya - This title signifies a Brahmin who is noted for several qualities of head and heart. Generally the name of the village in which the family lived is added to this title and thus the Upadhyayas of different villages are distinguished from each other, e.g. Bandyopadhyaya, Gangopadhyaya, Mukhopadhyaya etc.

Visayee - The Chief of a district in Orissa was known under this title. Collection of revenue, responsibility of administration and justice were also laid on them.

3 LIST OF SURNAMES

Herein is a list of surnames as it obtains amongst Bengalees in general. An attempt has been made to make the list as full or as complete as possible, but there may be some omissions which may have escaped my notice. It will be found that all the different surnames are not very common and there may be no authors at all with some of these surnames. The list has been drawn up with an eye not to authorship but to the prevalence of the surnames as they are in Bengal. The following publications have been consulted in the drawing up of the list of surnames:

1 Vasu (N.). Vanger jatiya itihasa.

2 Ghose (S.K.). Vangali jati parichaya

3 Ghose (S.K.). Articles on Vangali jatir parichaya. Vasumati (1360-61).

Aai
Achan
Achar
Acharya
Ada
Addy
Adhairya
Adharya
Adhikar
Adhikari
Adhya
Adigiri
Aditya
Agar
Agradani
Ahir
Ai
Aich
Aikat
Ain
Aisa
Aja
Akali
Akradhari
Akrur
Akure
Ala
Alamkar
Amani

Ambuli
Anak
Anga
Antar
Antari
Aon
Apaman
Aratdar
Arjun
Arobu
Arora
Arosthi
Aru
Arus
Aryya
As
Asa
Asak
Ata
Atar
Atarthi
Atmelya
Atta
Aulia
Avadhut
Avagis
Avidkari
Ayakat
Ayan

Ayan Datta

Babu
Bachal
Bachari
Bachaspati
Badak
Baddi
Badia
Badyakar
Bagal
Bagale
Bagchi
Bagdi
Bagh
Bagha
Bagha
Bagi
Bagui
Baguli
Bahan
Bahubasi
Baidab
Baidi
Baidya Ray
Baila
Bairagi
Bairagya
Bais

Baital
Baitalik
Baitanik
Baiti
Bajal
Bajali
Bajpai
Bajpeyi
Bajti
Baju
Bak
Bakla
Bakse
Baksi
Bakti
Bakui
Bakuli
Bal
Baladhikari
Balia
Balial
Balikak
Ballam
Ballav
Balmajumdar
Balmiki
Banamunsi
Bandur
Banduri

Bandyopadhyaya
Banerji
Bangabash
Banik
Banikya
Bankra
Bankura
Bans
Bansi
Bantul
Banu
Banua
Bar
Bara
Barai
Baral
Barari
Barat
Bardhan
Bareri
Bari
Barik
Barma
Baroi
Barua
Barui
Barujivi
Basab
Basak
Basani
Basanta
Bastu
Basubak
Basubati
Basuli
Basunia
Batan
Baul
Bauri
Bavali
Baxi
Bayen
Bed
Bedajna
Bedi
Beed
Beji
Belel
Beoa
Bera
Beskari
Betal
Beyal
Bhaban
Bhabani
Bhade
Bhadra
Bhaduri
Bhajan
Bhakat
Bhalla
Bhaluk
Bhalukkheko
Bhandari
Bhangi
Bhanja
Bhar
Bharadube
Bharali
Bharma
Bhatak
Bhatta
Bhattacharyya
Bhattak
Bhattasil
Bheuli
Bheumik
Bhifu
Bhim
Bhisan
Bhistil
Bhong
Bhonr
Bhose
Bhui
Bhuichal
Bhuiya
Bhumija
Bhumik
Bhumika
Bhunja
Bhup
Bhuringa
Bhusan
Bhut
Bhuti
Bhutta
Bibagi
Bibar
Bichali
Bichili
Bidha
Bihari
Biki
Bina
Bishal
Bishara
Bishnu
Bisri
Biswabasu
Biswas
Bocha
Bose
Brahma
Brahmachari
Burai
Byabasta
Byas

Cha
Chabri
Chachura
Chaigi
Chaira
Chak
Chakhandi
Chaki
Chakla
Chakladar
Chaklanavis
Chakra
Chakraburty
Chakraburty Thakur
Chal
Chaladar
Chaliha
Chalta
Chamar
Chamham
Champati
Chan
Chanak
Chanda
Chandal
Chandi
Chandra
Chanduk
Changri
Chap
Chaprasi
Charal
Charam
Charan
Charchari
Charit
Charui
Charvak
Chatak
Chatang
Chataoala
Chatapara
Chathati
Chatra
Chatrapati
Chatri
Chattakhandi
Chattaraj
Chatterji
Chattopadhyaya
Chatui
Chaturmukh
Chaturvedi
Chatuspati
Chaube
Chaudhuri
Chaukat
Chaula
Chaule
Chauli
Chaulia
Chaulya
Chaunare
Chaurasi
Chel
Chel-Vachil
Cheng
Chengri
Cheuli
China
Chine
Chini
Chiri
Chiti
Chobe
Chongdar
Chunder
Chunia
Chunnari
Chunuri
Churaman
Churidar
Chutar
Chuyal

Dab
Dabhai
Dafadar
Dagar
Dagchi
Dai
Daityari
Daivajna
Daiyasi
Dakati

Dakhi
Dakshi
Dakshina
Dakshit
Dakua
Dal
Dalal
Daloi
Dalui
Dam
Dama
Damda
Dan
Dandapat
Dandapath
Dang
Dangali
Dangani
Daniyari
Danta
Dari
Dariyali
Darji
Darkar
Darvesh
Das
Das Gupta
Das Sarkar
Das Sarma
Dasi
Dasri
Dastagir
Dastidar
Dasu
Datta
Datta Gupta
Daw
Dayal
De
De Arnav
De Haldar
De Sarkar
Deb
Deb Mallik
Dedhara
Dedihidar
Deghuria
Deheri
Dere
Desali
Deshmukh
Deuri
Deuti
Devansi
Devasasimalla
Devi
Devjani
Devnath
Devraj
Devraya
Devrayamalla
Dewanji
Deya
Deyali
Dhak
Dhala
Dhale
Dhali
Dham
Dhamali
Dhan
Dhanda
Dhangar
Dhani
Dhank
Dhanp
Dhanr
Dhanvantari
Dhaoa
Dhapdhape
Dhar
Dhara
Dhari
Dharmaraj
Dhasu
Dhauria
Dhavaldev
Dhayoa
Dhenki
Dhepsa
Dhir
Dhivar
Dhol
Dhon
Dhoyan
Dhudhuria
Dhuk
Dhukre
Dhul
Dhuli
Dhumar
Dhuni
Dhurandhar
Dighal
Dighapati
Digpati
Diha
Dihidar
Dikshit
Dingal
Dinta
Dirghangi
Dishmukh
Dishnu
Diyali
Diyasi
Doari
Dogra
Doi
Dol
Dom
Don
Duari
Dugar
Durlabh
Dut
Dutt
Dutta
Dutta Majumdar
Duvedi
Duya
Dvari
Dvija

El
Es

Gabur
Gadi
Gairik Khan
Gaj
Gajandar
Gajendra
Gal
Galai
Galui
Gandak
Gandar
Gandha Vanik
Ganesh
Gangavasi
Gangopadhyaya
Ganguly
Gantait
Gantidar
Gara
Garai
Garani
Garga
Gargari
Gari
Garia
Garu
Gatait
Gati
Gautam
Gayen
Gelgai
Gendi
Ghada
Ghakur
Ghanteswari
Ghanti
Ghar
Ghara
Gharui
Ghatak
Ghatam
Ghatiya
Ghatmajhi
Ghatoyali
Ghatoyari
Ghatpatar
Ghatuya
Ghedali
Ghenriya
Ghesera
Gheset
Ghora
Ghorali
Ghorel
Ghorui
Ghosal
Ghose
Ghosh
Ghughu
Ghuku
Gohel
Gol
Golondaj
Golui
Gomosta
Gon
Gona
Gondani
Gode
Gondol
Gorakshi
Gorami
Goswami
Goyala
Gucha
Gude
Guha
Guin

Guiya
Gujya
Guli
Gumtya
Gun
Gunraj
Gunri
Gupta
Guriya
Guta
Guti

Habar
Had
Hada
Hadi
Hajarika
Hajra
Hakim
Halamda
Haldar
Hali
Halsa
Haluai
Haluikar
Hams
Hamvir
Handa
Handal
Hande
Handi
Handle
Handol
Hangsa
Hanis
Hansa
Hansda
Hanta
Har
Harbag
Hari
Harkara
Harma
Harsha
Hasi
Hati
Hatui
Hatuya
Hauni
Hayui
Hazari
Hazra
Helakata
Hele
Helen
Hema
Hembram
Hens
Hes
Hesh
Hevaram
Hoj
Hokar
Hom
Home
Home Ray
Hondol
Huduk
Hudut
Huhatait
Hui
Hukumdar
Hunde
Huntait
Hutait

Indra
Indu
Ishan
Ishar
Ishor
Ishore

Jaba
Jadab
Jaddar
Jail
Jaj
Jal
Jalan
Jaliadas
Jalkar
Jalua
Jamadar
Jamidar
Jana
Jasu
Jayaddar
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Paper N

COURSE OF TRAINING FOR DOCUMENTALIST

S R RANGANATHAN

Outlines a syllabus for the training of a person, with a post-graduate degree, as a documentalist, leading to M Lib Sc degree. The course is spread over instruction in six subjects and two projects to be carried out during the year of training. Points out the confusion caused by a historical accident in some countries and two different connotations of the term 'information service'. Recommends the separation of the courses for documentalist and for information officer, and the placing of the former within the area of Library Science.

0 INTRODUCTION

The subject of Training for Documentalist has been engaging the attention of the FID for a number of years. It is time for some decision to be made. For, the urgency of the problem is increasing in many countries. Consequently, there are diverse irrational practices taking shape. They may become rigid, even if it be for reasons of prestige. The problem, should, therefore, be taken up for detailed discussion at the forthcoming FID Conference, at Rio de Janeiro. As a help towards this, the following course of studies for Training for Documentalist is outlined as a basis for focussing discussion. The duration of this course of study is taken as one year.

01 Number of Papers

For convenience, the details of the course of studies are given in terms of the subjects to be covered. These are as follows:

1. Universe of knowledge, its development and structure;
2. Library classification (Theory);
3. Library classification (Practical);
4. Library catalogue;
5. Documentation;
6. A project in documentation;
7. Business library system; and
8. A survey of trend in current literature in an approved subject.

1 UNIVERSE OF KNOWLEDGE ITS DEVELOPMENT & STRUCTURE

1 The various subjects having knowledge as the field of study. Their inter-relation.

2 Primary senses. Association. Intellection. Imagination. Intuition.

3 Sensory experience. Intellectual experience. Private, Externalised, and Socialised memory. Thought-Term relation. Nomenclature. Terminology. Fundamental terms and their standardisation.

4 Fact. Empirical law. Descriptive formulation. Fundamental law. Interpretative explanation. Hypothesis. Normative Principle. Deduction. Empirical verification. Abstraction. Generalisation. Concretisation. Particularisation. Spiral of Scientific Method.

5 Positivistic, Speculative, and Authority-centred modes of thinking. Methods of pure

sciences, applied sciences, social sciences, and fine arts.

6 Universal knowledge as mapped in schemes of library classification. Its demarcation into sections and sub-sections. Universe of knowledge as a static continuum.

7 Inter-relation of sections. Modes of inter-relation and cross-section. Formation of new sections. Modes of formation. Dissection. Denudation. Lamination. Loose assemblage. Universe of knowledge as a dynamic continuum.

2 LIBRARY CLASSIFICATION (THEORY)

1 General theory of classification. Canons for it. Theory of knowledge classification. Cannons for it. Work in the idea plane, and the notational plane. Basic class. Isolate. Facet Analysis. Phase Analysis. Focus. Simple, compound, and complex foci. Intra-facet and intra-array relation.

2 The five fundamental categories and the facets corresponding to them. Rounds and levels of manifestation of the fundamental categories. Postulates for idea plane. Principles for determining the helpful sequence of any two facets.

3 Array. Telescoping of arrays. Telescoping of facets. Common isolates - anteriorising and posteriorising. Special isolates. Quasi isolates. Environmented isolate. Superimposed isolate.

4 Enumerative classification. Analytico-synthetic classification. Enumeration of isolates in a facet. Formation of isolates by alphabetical, chronological, geographical or subject device. Zone Analysis. Abstract classification.

5 Notational plane. Postulates for notational plane. Co-extensive class number. Individualising class number. Mixed notation. Octave notation. Group notation. Heirarchial and non-heirarchial notation within a facet.

6 Macro-thought. Classification for book arrangement. Micro-thought. Classification for documentation work. Depth classification. Other uses of library classification in a library. Use of classification in arranging concrete materials. Classification and coding for machinery for search.

7 Evolution of classificatory technique. Comparative study of Bibliographic classification, Colon classification, Library of Congress classification, and Universal Decimal Classification. Standards for the elements needed in classification schemes. Universal and special schemes of classification.

3 LIBRARY CLASSIFICATION (PRACTICAL)

Classification of books, monographs, and articles, by Colon Classification and Universal Decimal Classification.

4 LIBRARY CATALOGUE

1 Canons for cataloguing. Layout of a catalogue code. Standards for the elements needed in catalogue codes at the international, national, linguistic, and local levels.

2 Classified catalogue. Dictionary catalogue. Kinds of entries. Specific entry. General entry. Main entry. Added entry.

3 Choice of heading for main entry and book index entry for simple, multi-volumed, and composite books, periodical publications, and micro-documents.

4 Rendering of personal, geographical corporate, and series names and titles of books in headings of entries.

5 Title section in main entry and in other specific entries.

6 Choice and rendering of headings in subject entries. Chain procedure. List of subject headings.

7 Author analytical. Subject analytical.

8 Class index entry. See and See also subject entries. Cross reference index entry.

9 Comparative study of the latest editions of the Classified catalogue code, the ALA Code, Rules for the dictionary catalogue, and the rules for the dictionary catalogue given in the Classified catalogue code.

10 Alphabetisation and its problems. Abbreviation of titles of periodical publications. Bibliographical references.

11 Layout and additional rules for union catalogue, abstracting and indexing periodicals, and national bibliography.

12 Cataloguing of non-conventional forms of documents.

5 DOCUMENTATION

1 Book versus document; Macro-thought versus Micro-thought: Nascent thought; Generalist and specialist readers. Bibliography and documentation list.

2 Documentation work. On demand. In anticipation. On a specific subject. On all subjects. National versus world coverage. Retrospective versus current.

3 Levels of organisation for Documentation: International: National: Local. Role of FID and Unesco as co-ordinating and promoting agencies. Varieties of documentation list. Principles of selection for national and local documentation work. Layout of documentation list.

4 Documentation Service: Facet analysis in helping the reader in the exact enunciation of his subject of interest at the moment. Finding the needed document. Finding the needed data. Finding entities having several specified properties or values and mechanical searching aids for the same.

5 Search methods: Conventional methods – classified catalaogue using depth classification and subject headings by chain procedure; Mechanical methods - punched cards, electronic machinery and coding for machinery. Relation of depth classification to coding. Comparison of conventional and machine methods. (Note: The engineering and technological aspects of mechanical methods are excluded).

6 Procurement of documents: From local, national and international sources.

7 Types of document reproduction from the point of view of users and top management of documentation centres. Photostat. Enlargement. Microfilm (roll or strip). Microfiche. Microcard. Preservation. Reading apparatus. (Note: The engineering and technological aspects are excluded).

8 Translation service: Full time translators. Panel of translators with full time editors. Information about progress towards machine translation. (Note: Excluding engineering aspects).

9 Abstracting: Abstracting personnel. Competence in subject field and depth classification. Use of author synopsis. Need for abstracting one and the same document in the abstracting media of several subjects. Canons of abstracting. Language: Sentence versus kernel form; technical versus popular terms. Use of standard fundamental constituent terms. Length of abstract. International Co-ordination of abstracting service.

10 Social factors making documentation necessary. Population pressure. Supplementing natural and near-natural commodities, by artificial commodities made from unconsumable raw materials with the aid of technology. Reference service to research workers. Conservation of the research potential of the world. Research-in-parallel versus Research-in-Series. Plough-back of nascent micro-thought into the minds of the research team.

6 DOCUMENTATION PROJECT

Preparation, during the year of a Documentation List on an approved subject on the basis of an approved set of periodicals for one year.

7 BUSINESS LIBRARY SYSTEM

1 Types of business libraries. Industrial libraries. Commercial libraries. Newspaper office libraries. Libraries of Government Departments. Libraries of Research Institutions.

2 Kinds of business libraries. Libraries of individual institutions. Central libraries at national and regional levels. Inter-library cooperation. Service library. Distributing library.

3 Place of library in business organisation. Correlation with the activities of the departments

of the parent body. Relation with the staff of the departments of the parent body.

4 Organisation of the different types and kinds of business libraries. Library finance. Library building, and equipment. Library statistics and librametry.

5 Classification and filling of fugitive materials like prospectuses, leaflets and clippings. Help in the classification and arrangement of commodities.

6 Library administration. Selection and acquisition of books and periodical publications. Accession work. Maintenance, circulation, and display of books, periodical publications, patents, standards, specifications, drawings, pamphlets, clippings, microfilms and similar materials.

7 International, national and local sources and centres of information. Reference service. Bibliographical service. Abstracting service. Library bulletin. Extension service to workers.

8 REPORT ON LITERATURE SURVEY

Report on an assigned project carried out during the year in surveying the trends in current literature and the bibliographical tools in an approved subject.

91 REQUIREMENTS FOR ADMISSION

Normally, a candidate for admission to a course in Documentation should have as a minimum a primary University Degree in one or other of the Natural Sciences, Applied Sciences or Social Sciences. For the time being, the demand for documentation is only in these areas. Even here, there is less demand in Social Sciences than in the others. In the selection for training as Documentalist, candidates will be drawn from different subject fields in the light of requirements. This may vary from country to country and in the same country from year to year. It is desirable that preference is given to candidates deputed by organisations needing documentation service. This will be particularly important in newly developing countries. In addition to a primary University Degree, a candidate should have also a post-graduate degree. It may be either B. Lib. Sc. (Bachelor of Library Science) or a Master's Degree in some other subject. The course for Training for Documentalist may lead to the degree of M. Lib. Sc. (Master of Library Science).

92 APPRENTICESHIP

It is desirable that a candidate for a course in Documentation should have acquired familiarity with the routine of documentation work and service. For this purpose, he should have been an apprentice for a prescribed period in an approved library doing documentation. It has been found that raw graduates admitted directly to the course do not have the time within one year to gain competence in routine work. It is also found that, without a prior familiarity with routine, a candidate finds it difficult to absorb the instruction in the theoretical aspects of the subject. He does not easily acquire the mental set to appreciate the need for many of the elements taught in the course. Experience of apprenticeship is normally required in every other profession, such as Engineering. The profession of Documentalists cannot be an exception to this practice.

93 FAMILIARITY WITH LITERATURE

A candidate taking a course in documentation should acquire intimate familiarity with the existing literature, reference books, and bibliographies in some areas of knowledge. It is a moot point whether this familiarity should be acquired by the candidate by his own voluntary effort and wide reading, or wehther it should be made formal part of the course. Whatever knowledge he may pick up during the course will soon become out-of-date. For, the universe of documents is ever dynamic. He will have to keep himself continuously informed of the new literature taking shape from time to time. Moreover, he cannot escape the impact of new literature in the very process of his work as a documentalist. It will therefore be futile to adopt the camel-theory of education and load the memory of the candidates with titles of books and other publications. On the other hand, the project of literature survey suggested in section 8 will give a good discipline to candidates in comprehending and keeping himself aware of the live documents in the wave front of knowledge. It will also increase his competence in making effective use of the annual reriews of literature in diverse fields. It may also qualify him for the production of annual reviews of literature which is one of the forms of documentation work. Of course, this competence he will acquire only by his specialising in documentation work in a particular subject field for some years. A development along these lines will eventually eliminate the wastage in research potential now being caused by persons engaged in research being themselves obliged to spend their time in preparing reviews of literature. The social pressure today does not allow the dissipation of the research-potential of the world in this way.

94 HISTORICAL ACCIDENT

In countries which began to develop even by the nineteenth century, a form of conflict appears to have arisen in the development of the profession of documentalists. These are called 'special librarians' as opposed to librarians. For example, this conflict was highlighted in the Aslib Conference of 1948. Some hours were spent in debating whether 'special librarians' should be treated as librarians or scientists. The latter view won by a narrow majority. A touch-me-not outlook was also witnessed among the 'special librarians'of USA in 1950. The retarded rapproachment between the Ifla and the FID and the proneness of the library associations and the associations of 'special librarians' to continue to be exclusive of one another also bear testimony to this conflict. But it is all due to a historical accident. In the nineteenth century, when the public libraries developed in those countries, their aim was mostly to serve whole books and periodicals. This was considered sufficient by most of the readers. Research scholars needing micro documents were usually self-helpers. The professional librarians practising in public libraries gained greatly in strength and got themselves organised effectively as library associations. Decades later, in the twentieth century, the industries realised the importance of research. They also realised the waste involved in research workers having to spend time in literature search. In other words, they felt the need for documentation work and documentation service to be done and administered to them by others. But the library profession practising in public libraries did not grasp this opportunity to reorient itself in its outlook and service. Consequently the scientists set apart some members among themselves for this work. In some countries where library associations were controlling or conducting professional examinations, a further complication arose. A few scientist 'special librarians' felt the need for training in certain areas of library science relevant to their purpose. But there was insistence from the library profession on the whole area of library science as developed for public library work with hardly any content needed for documentation. This widened the gulf. Special librarians — documentalists — began to organise their own training. They went to the other extreme of refusing to recognise the extence even of overlapping areas. This historical accident in some of the earlier developed countries has coloured the view even in the international plane.

95 A MISTAKEN IDENTITY

Another cause of confusion has come into this field. It originated from the term 'information service'. This term has been used indifferently to denote two different services:

1 Service of nascent micro thought to research workers in order to feed them pinpointedly and to help them to avoid unintended and unnecessary duplication of research effort in any special field whatever; and

2 "Selling" newly developed ideas, techniques, and production methods to top managements, production engineers in the industries, and industrial workers, written in a language much simpler and more popular than the terse and severely technical language of the original research communications.

This indifferent use of one and the same term to denote these two different ideas has also caused confusion in determining the content of the course of training for documentalist. But it can be seen that the purposes of these two forms of 'information service' are different.

The clientele on whom they are turned are different. The techniques to be employed by the two services have to be different. The training needed for the rendering of the two services has also to be different. Failure to recognise these differences has also led to confused thinking in organising the curriculum and the consequent delay in doing it. The coming of the term 'Documentalist' into increasing use is underlining the distinction between the two kinds of 'information services'. The function of a documentalist can be distinguished from those of 'Information Officer'. The time has therefore become ripe to work out different schemes of training for the personnel for the two different kinds of 'information services'.

The course outlined in this paper is for the documentalist. Naturally, this places a great emphasis on survey of trends in subject fields, organisation of documents with the aid of depth classification, and methods of literature search in the wave front of knowledge.

A different course of study should be designed for the 'information officer' meant for dissemination of information outside those engaged in research. It should be rich in public relations methods and journalistic presentation of such results of research as are ready for exploitation by industries, that is by producers of commodities and providers of services - large and small - and other consumers. This separation should make further work in designing course of studies easier. Documentation technique may not fit in with this course.

96 NEWLY DEVELOPING COUNTRIES

Today, several countries have recovered from centuries of cultural exhaustion and creative inaction in the sphere of thought. When they wake up, they naturally feel dazed like Rip Van Winkle. Blind imitation of already developed countries is the first impulse. The confusion due to the double connotations of the single term 'information service' confounds them. They are affected by the pressure of what happens in the earlier developed countries. They are prone to take upon themselves all the difficulties caused in the other countries by historical accident or mistaken identity. Such a thoughtless capitulation blesseth neither the newly developing countries nor the already developed countries. On the other hand, the newly developing countries will do a good turn to themselves and to others if they take advantage of the opportunity they have to re-think the whole problem freely and boldly, and to write on a clean slate free from hampering traditions. India is struggling to do so. It seeks to secure the oneness of the profession of librarians and documentalists. The training of the two will have a good deal in common. The difference will be only in the area of specialisation forming final culmination and the particular branches of library service selected for adoption. The common area will be covered in the first year's postgraduate professional course leading to B Lib Sc degree. The second year's course leading to M Lib Sc degree will still have a common core made up of a study of the universe of knowledge and its development and structure, and advanced classification and cataloguing. But the differentiation will be secured by provision for different optional subjects making up half of the second years course. One set of optional subjects will put its weight on the side of public and other traditional kinds of library service. Another set of optional subjects will put its weight on the side of documentation work and service. The course suggested in this paper for documentalist is culled out of such an integrated course for both the wings of the library profession.

UNIVERSITY CENTRAL LIBRARY

Paper P

CLASSIFYING INDEXING CODING

S R RANGANATHAN

Location of relevant entries by machine search requires prior facet analysis. Difficulties in facet analysis regarding consistent choice of sequence of subjects and of facets in subjects in the idea plane and difficulties in the verbal plane are described. Postulational approach and indexing by chain procedure solve the difficulties. Suggestions are made for the machine to be fed with the specific permutation of facets along with connecting symbols for the fundamental categories and the rounds and levels of the facets.

Contractions used:-

CC - Colon Classification
DC - Decimal Classification
PMEST - Personality, Matter, Energy, Space, Time (the five fundamental categories)

Terminology:- The classificatory technical terms used in this paper will be found defined in my Library classification glossary, (Annals of Library Science, 5, 1958, 65-112).

0 INTRODUCTION

It is nowadays sought to use machinery for the two following major purposes:-

1 Locating, in a store of entries, those relevant to a specific subject — pinpointedly, exhaustively, and expeditiously; and

2 Producing copies of the entries, and/or the abstracts of the respective documents, and/or copies of the respective whole documents.

The latter work does not concern a classificationist. The former does. This paper is, therefore, concerned only with the former.

1 FACET ANALYSIS AND ITS VITAL ROLE

The following five stages may be reconsidered in the work involved in the location of entries with machinery:-

1 Spotting out and marking in the entry of a document all its basic classes, and the isolates in all the facets attached to each of the basic classes;

2 Feeding into the memory of the machine each of those basic classes and isolates, information about the host document or location of the document, and if necessary the name of the author and the title of the document;

3 Expressing any subject brought up for search, in terms of all its basic classes and the isolates in all the facets attached to each of its basic classes;

4 Programming the machine to search the subject in terms of its basic classes and isolates; and

5 Re-translating from the machine language to the natural language the entries of all the relevant documents spotted out by the machine in carrying out the programme.

Of these five stages, the first four fall within the scope of this paper. Stages 1 and 3 are extra-machine stages. They belong to the discipline of classification. Facet Analysis plays a vital part in these two stages. Stages 2 and 4 are intra-machine stages. Facets figure in them too On account of this involvement of machine search in facet analysis, it may perhaps be helpful in the designing of machine for search, to give an account of the successive difficulties met with in the development of CC and of the facet analysis associated and developed along with it.

2 FACET ANALYSIS AND ITS STAGES OF DEVELOPMENT

20 Difficulties Met With

The different stages in the development of CC and of facet analysis were associated with the five difficulties mentioned below:

1 Difficulty in the consistent choice of the sequence of subjects;

2 Difficulty in the consistent choice of the sequence of the facets in a subject;

3 Difficulty in the consistent choice of fundamentally the same sequence of facets in all subjects;

4 Difficulty in the design of a notational system to mechanise the preferred arrangement of subjects; and

5 Difficulty in the design of a notational system to mechanise the preferred arrangement of facets in a subject.

The first three difficulties fall in the idea plane; and the last two fall in the notational plane. Some of the difficulties have been fully solved; and some have been solved only partially.

21 Consistent Sequence of Subjects

211 DC and Single Schedule

In DC a consistent sequence of subjects was sought to be secured by the enumeration of all the subjects - known as well as anticipated in a definite sequence. In other words, DC consciously determined the sequence of all such subjects, as an advance measure. The result was a single or monolithic schedule. Except for the relative index, DC did not provide any aid to analyse the subject of a document into its facets and determine its character — in other words to determine the precise subject of a document. This led to inconsistency — both from library to library and within one and the same library. Generally speaking, it could take care only of old or known subjects. Even here, DC could take note only of some of the relevant facets of a subject. The other facets had to be ignored. This caused a difficulty of its own. Apart from this, the real crux of the problem was the one created by the continuous emergence of new micro subjects almost in every basic class. Their emergence is now very intense on account of the turbulent state of the universe of knowledge. This turbulent state is due to incessant research by large teams all the world over. This incessant research is due to the social pressure caused by population pressure. The new micro subjects gaining literary warrant could not be placed consistently within the sequence of the already existing subjects.

212 CC and Facet Analysis

CC sought to meet the difficulty with facet analysis. To this end, it attached a facet formula to some of the basic classes. A schedule of isolates was given for each of the facets. The The facet formula gave the digit ":" as the connecting symbol between isolate numbers. A synthesis of a basic class number and of any isolate number taken from each of one or more of the schedules of isolates given for the basic class gave the class number of a subclass of the basic class. The ordinal value of ":" was defined to be less than that of 1 and therefore less than that of any digit whatever, forming part of a basic class number or an isolate number. As a result of this arrangement, a class number was polylithic unless it was a basic class number. Different subjects were formed by the different combinations, made of the basic class and any one isolate taken from the schedule for one or more of its facets. The sequence of the subjects so formed was made automatically consistent by this facet approach, without the need to think out de novo, the filiation of any new subject with the old ones.

22 Consistent Sequence of Facets

221 Stage 1: Arbitrary Fixing of Sequence

The first stage was from 1925 to 1933. 1925 was the year of the first design of CC. 1933 was the year of publication of edition 1 of CC. In the first stage, the facet formula enumerated the permissible facets. It also fixed the sequence of the facets. This rigid prescription automatically secured consistent sequence of facets in all the class numbers belonging to any given basic class. However, the fixing of the sequence of facets in a facet formula was done by sheer flair. It was practically arbitrary.

222 Stage 2: Change of Sequence

The second stage was from 1933 to 1939. Edition 2 of CC was published in 1939. In the second stage, experience gained during reference service showed that the sequence of facets in some subjects was not as helpful as in others. The facet formula for Chemistry, for example, did not throw the subjects in Chemistry in a sequence felt by the majority of readers to be filiatory and helpful. It was so in Law also. The sequence of facets in their respective facet formulae was therefore changed. Edition 2 of CC gave such changed facet formulae.

223 Stage 3: Consistent Sequence at Deeper Level

The third stage was from 1939 to 1950. Edition 3 of CC was published in 1950. Till then, facet formulae had been given only for fundamental sciences, a few major applied subjects, the humanities, and the social sciences. Experience with Chemistry and Law has shown the risk involved in depending on mere flair in fixing the sequence of facets. The risk increased with the number of facets presented by a subject. In the third stage, documentation came into vogue extensively. The emphasis of documentation was on micro subjects. And a micro subject presented quite a number of facets — even exceeding a dozen. The need for the rationalisation of the fixing of facets and of their sequence was increasingly felt. It was not sufficient to secure consistent sequence of facets merely among the subjects falling within a particular basic class. This was rather trivial and it was easily secured. Consistent sequence of facets should be secured also among all subjects, whatever be their respective basic classes. This consistency should be sought at a deeper level in the idea plane. The words used to name the facets of various subjects in the verbal plane had been hiding the equivalence of the facets of different subjects at a deeper level in the idea plane. This was conjectured while writing Library classification: Fundamentals and procedure (1944). This led to the possibility of looking upon any facet of any subject as a manifestation of one or other of the five fundamental categories PMEST.

224 Stage 4: Removal of the Rigidity of Facet Formula

The fourth stage was from 1950 to 1957. Edition 5 of CC was published in 1957. During this stage, the PMEST idea was pursued. It led to:

1 the recognition of P, M, E, S, and T facets;

2 the concept of rounds among the facets of a subject;

3 the fixing of the sequence of PME in each round;

4 the fixing of sequence ST in the last round;

5 the concept of levels of each of the fundamental categories in a round; and

6 the design of distinct connecting symbols for the P, M, E, S, and T facets.

This removed much of the rigidity in the facet formula. And yet consistence sequence was secured in the sequence of facets, not only among the subjects of a particular basic class but among all the subjects, as viewed from the deeper level of the five fundamental categories. This generalisation left the sequence of the subjects undisturbed. And yet, it provided for the mechanisation of the placing of any new micro subject unerrnigly in one and only filiatory and helpful position among the already arranged subjects.

225 Stage 5: Postulational Approach

The fifth stage is still current. It began about the end of 1956. Its chief feature is the basing of classification on a set of postulates. There is a separate set of postulates for the idea plane, the verbal plane, and the notational plane. There are also principles to regulate the assignment of a facet to a definite round and level. These were first conceived while teaching in the British Library Schools in December, 1956. These were developed in greater detail while lecturing in the Library Schools of U S A, Canada, Japan and Ujjain between October 1958 and February 1959. The postulational approach appears to be of good promise. A definite procedure of seven steps has been evolved for classifying a document on postulational basis, as illustrated in section 5 of my paper, Natural, classificatory, and machine languages. This mechanises facet-analysis and the construction of class numbers. Consistent sequence of facets and a consistent filiatory and helpful sequence of subjects are secured mechanically. No doubt cases arise transcending the principles, enunciated so far, for assigning a facet to the appropriate round and level. These cases occur often in the social sciences. However, there are reasons to believe that these difficulties can be got over by working with a large variety of subjects with several rounds and levels of facets — that is, depth-subjects. The opoprtunity to solve these difficulties will emerge as and when literary warrant increases in depth subjects. The solution is likely to take the form of additional principles to guide in assigning a facet of a subject to its appropriate round and level.

3 NOTATIONAL PLANE

The work in the notational plane is comparatively easy. This is due to:

1 the generalisation of the concept of ordinal numbers;

2 the use of a mixed notation;

3 the setting apart of the last digit of each species of digits as an octavising digit;

4 the concept of telescoped array;

5 the concept of telescoped facet;

6 the packet notation to implement subject device without introducing homonyms in the classificatory language;

7 the development of the idea of Environmented Entity; and

8 the introduction of schedules of phase and intra-facet realtions. With all these features, the notational plane can implement any decision made in the idea plane. This is as it should be.

4 VERBAL PLANE

41 Need for Jargon

Verbal plane is concerned with words and terms in natural languages. It is full of homonyms and synonyms. It is always in a state of flux. Consistency is impossible in that plane. A classification schedule has therefore to improvise its own terminology — amounting to a jargon — free from the defects of terminology in a natural language. Indeed, it is best to have two verbal columns in the schedule — one in jargon and the other in natural language. The meanings of the terms in the jargon column are made clear by the cannons of Context and of Enumeration.

42 Need for Alphabetical Index

Readers can not name their subjects in class numbers. They can only mention them in a natural language. They have therefore to be provided with an alphabetical index to the class numbers. In general, a reader can not name his subjects precisely. He generally names only a subject of greater extension than his' intended one. On account of this, the purpose of the alphabetical index has to be essentially that of giving him the class number of any unprecise subject mentioned by him; this class number will put him into his region of the classified part of the main entries of documents;

there, in the context of the hierarchial display of feature headings, — in the helpful panorama presented by feature headings — he recognises his precise subject.• He also finds thrown together under its name and class number — the entries of all the documents relevant to the subject he had in mind.

43 Need for Slimming the Index

A factor in the verbal plane causing difficulty in the building of the alphabetical index, is the necessity to use multi-worded terms for denoting most subjects — particularly depth subjects. Having a different index entry for each of the permutations of the words in the term is suggested at first thought. But it will swell the alphabetical index in the measure of the factorial function. The index part should be slimmed down to make it easy of use.

The Chain Procedure gives a consistent method of slimming. Stated in general terms, it prescribes rules

1 to choose for indexing one and only one permutation of all the words in the term;

2 to have another index entry with a heading got out of the heading in 1 by omitting its entry word alone;

33 to have another index entry with a heading got of the heading in 2 by omitting its entry word alone; and

4 so on, until reaching the index entry with one word alone as the heading.

The result is n index entries only instead of n! entries. Incidentally these are the likely index approaches by a reader mentioning a subject of greater extension than his intended one.

44 Sequence of Words

The sequence of the words in the term index is important. Even in an inflectional language, different sequences of the words often give different meanings. A non-inflectional language has to depend for the meaning of a term solely on the sequence of its words. The terms used in an alphabetical index has to be made of a term made of words in the substantative form without inflection and without the auxiliary words forming substitutes for inflection. We do not go here into the reason for this. The meaning of a term in the index is therefore dependent on the sequence of its words. Each and every permutation of the words may not have a significant meaning. But there are often quite a few permutations with significant and different meanings. The correct permutation should be chosen. "Periodicals (on) Reference Service" is different from "Reference Service (with) Periodicals". In both, the kernel terms are the same. It is their sequence that gives two different meanings.

45 Classification cum Chain Procedure

The postulates of classification and the principles for assigning each isolate to the appropriate round and level throw the isolate terms in a definite sequence yielding a definite meaning. The chain procedure derives the index entries from this definite sequence via the class number representing that definite sequence. Thus the pitfalls in the verbal plane are all avoided by classification and indexing by chain procedure.

5 CODING IN MACHINE LANGUAGE

In machine search, arrangement of entries, — that is, of subjects — may be totally ignored. For, its aim is the mere pulling out of the entries of all documents relevant to the question put, exhaustively. However, the machine has to be fed with all the facets of a subject at the stage of storage of entries. The isolate in each facet should be precise — that is, co-extensive with what it is in the subject. Similarly, at the stage of programming also, the machine has to be fed with all the facets of the subject of search. The facet analysis at the two stages should be consistent with each other. These three requisites in machine search can not be secured successfully if the coding is done directly from natural language. The coding should be done from the classificatory language. The more efficient the classification, the more helpful it will be in the coding for machine search.

6 WHAT SHOULD BE CODED

61 Specific Permutation

The next question is whether it is sufficient to code severally the basic class numbers and each of the isolate numbers in a class number. This would amount to coding only a combination of them and not the specific permutation of them making up the class number of the subject. Then all the difficulties mentioned in section 44 will arise. The questions arising out of this are:-

1 Can the machine take into its memory, as distinct entities to be remembered, each of the n! permutation of the facet in the n facets of the class number — made up of the basic facets and the isolate facets?

2 Can the machine pull out on order any particular permutation needed?

3 Will a machine capable of doing 1 and 2 be far more costly than the ones designed to handle combinations only?

4 Will it be within economic limits as determined by management-tests?

62 Connecting Symbols

In the simple conventional machine of Catalogue cum Class Number — provided by a classified catalogue fitted with an alphabetical index having class index entries as well as book index entries — all the problems are easily met. This is made possible by the designing of distinctive connecting symbols for each of the five fundamental categories PMEST. But in the application to codnig for machine search, this alone will not be sufficient. There should be distinctive symbols to indicate all the rounds of every possible order, and all the levels of every possible order within each round.

63 Problem for Designers

The designers of machinery for search may well consider, not only the feeding of basic class numbers and isolate numbers into the machine, but also the connecting symbols for the fundamental categories, and the symbols indicating their levels and rounds. Then the machinery for search will become as versatile as the conventional Catalogue cum Class Number. The problem for future work in the design of machinery for research appears in this form, when viewed from the notational plane. Probably, the designers, of machinery for search may be able to restate this problem in a different way. That way may achieve the purpose in a more economical way. Whatever be the way in which the designing achieves this purpose, it will also be available to take care of multi-phased subjects, for which literary warrant is now increasing.

Paper Q

COMPARATIVE CLASSIFICATION

DEPTH CLASSIFICATION 35

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Gives an account of comparative studies in the field of documentation. Describes the recent contributions on general theory of classification by various schools. Indicates the work done on coding for machine search and brings out its limitations. Mentions the comparative study now being conducted at the College of Aeronautics at Cranfield and outlines the future lines of development.

1 COMPARATIVE STUDIES

When it becomes possible to speak of using the comparative method in the study of a subject, it is a sign that the subject has attained a certain maturity - one might even say respectability. For the essence of the method is that it studies side-by-side the ways in which the subject has been approached and developed in different sets of circumstances; and the wish to compare implies two assumptions: that the different ways have some common features, and that each way has something of value to contribute to the general study of the subject. Insofar as the comparisons are also usually based on the foundations laid in different countries, it may truly be said that the use of the method is an indication of the growing desire among scholars to break down unnecessary national barriers and to draw strength from each other's work.

11 Studies in Other Disciplines

Several disciplines have already benefited in this way: religion and education are well-known examples, and they demonstrate the range of possible comparisons. In the first, it has been the philosophy, the theory so to speak, that has provided most of the inspiration. There have, it is true, been comparative studies of religious ceremonies and rituals, but the greater interest has always attached to similarities and differences in the mystique, the sacred books and their interpretation. In education, on the other hand, greater attention is given to the practical manifestations. The doctrines of many of the educational philosophers have transcended the boundaries of their country or culture and have won international acceptance, but differences have arisen in the lines along which the practical applications of their principles have developed.

12 Studies in the Field of Documentation

The field of documentation already provides us with some examples of both types of approach. Perhaps the outstanding example is that of Dr S R Ranganathan on cataloguing, published in 1955 with the title Heading and canons: comparative study of five cataloguing codes. In classification, the International Federation for Documentation some years ago set up its FID/CA Committee, which has produced several reports, some of them comparative, but it would be too much to say that comparative classification has yet won an established place in the study of the science. An examination of the work that has been done shows that, although much of the preliminary surveying is complete, little in the way of a systematic foundation has been laid, and we do not have to search very far to discover the extent to which classification has suffered from this lack. We in the West, for example, know next to nothing of the new system that has been made in the USSR on the basis of the philosophy of dialectrical materialism.

13 Descriptive Surveys

What we can say, however, is that the descriptive surveys have been made with very great thoroughness. Without going too far back into history, we can point to the books of Flint: Philosophy as scientia scientarùm, and a history of classifications of the sciences 1904; of Bliss: The organisation of knowledge and the system of the sciences, 1929; and of Sayers: A manual of classification for librarians and bibliographers, third edition 1955. All of these admirable and encyclopedic works contain descriptions of many schemes, but I believe that their authors would agree with me when I say that they were more concerned with recording the theory and history of the science than with developing the comparative study. If we are able to see farther today, we can with gratitude, like Newton, admit that we stand on the shoulders of giants.

14 Systematic Study

Some steps forward have been taken. In classification, as in cataloguing, a systematic comparative study has been made by Dr Ranganathan in the new edition of his Prolegomena to library classification, 1957; this is a good example of genuine comparative classification, in that it analyses in detail the methods adopted by several well-known schemes of classification in solving certain problems, and uses the results of the study to make improvements to the Colon Classification itself. Ranganathan is often accused in the West(usually by critics ignorant of his writings) of being over-theoretical, and of allowing a mystical pre-occupation with eternal truths to blind him to the practical problems of classifying documents. But like Plato, who also exhibits a certain preoccupation with eternal truths, Ranganathan's main characteristic is a business-like determination not only to come to grips with difficulties, but also to propose feasible solutions. Nowhere is this demonstrated more clearly than in Part 7 of Prolegomena.

2 GENERAL THEORY

21 Ranganathan's Contribution

As is well known, Ranganathan aims always at a general theory of classification, and his comparative studies have contributed to this end, but his hypotheses are always subjected to the test of incorporation into the Colon Classification and application to the arrangement of documents. While admitting without reserve the correctness of this method, we must nevertheless recognise that it has here the limitation that Colon itself is so incomplete in many important details. T H Huxley once said that Herbert Spencer's idea of tragedy was "a beautiful hypothesis slain by an ugly fact", and I occasionally wonder whether Ranganathan prefers to avoid such tragedies by using the flexibility of Colon to gloss over incompatibilities.

22 British Classification Research Group

Two other writers who have avoided such a limitation because they have not been concerned to improve a pre-existing system are B C Vickery and Eric de Grolier. Vickery's book, Classification and indexing in science, appeared only last year, but the second edition is already in the press and is expected shortly. It represents the results of several years of intensive study and discussion of basic principles and their applications made by the British Classification Research Group, of which Vickery has been prime mover and secretary since its formation. This group began its work as a consequence of the Royal Society Scientific Information Conference of 1948, which recommended, largely owing to the initiative of Professor J D Bernal, that the study of classification should be undertaken by interested people. It has no official existence, but its members have met regularly, and have bombarded each other with reports and papers, most of them unpublished. Reports of its progress appear from time to time in Aslib's Journal of documentation. Its members, between them, have during these years compiled some twenty specialist classification systems, several of them quoted in Vickery's book.

23 Vickery's Contribution

The chief value of the book (apart from its excellent presentation of the English work) is that Vickery set out to make a comparative study of principles - whether these principles were explicitly stated by their users or not - and extended the range of his survey to include the new groups working on machine literature searching and machine translating. He was able to show how the various schools of thought were tending to arrive at very similar results, even though they might have started from widely separated bases. It is in fact a feature of Vickery's work that he constantly seeks to underline what is common, rather than what is distinct, in the different theories, and he is probably doing more than anyone else to engineer fruitful contacts between workers in different countries.

24 De Grolier's Contribution

I hope he will agree with me when I say that this is also the aim of Dr Eric de Grolier, whose encyclopedic work, Theorie et pratique des classifications documentaires, appeared in 1956, the result, he tells us, of more than twenty years work. De Grolier has been associated with Ranganathan for several years as co-rapporteur to the FID committee on the Geneal theory of classifiction, and we have been glad (and even at times amused) to see how these two original minds have struck sparks from each other, even if it is sometimes in self-defence!

In this, and in a report written for Unesco, the range of de Grolier's work is formidable. He is completely familiar with recent thought, not only in Western Europe, Great Britain and the USA, but also in Eastern Europe, the USSR, and China. So far as I know, the combination of this wide range with a penetrating analysis of principles is unique in classification literature. But while his main aim in the book is analytical and descriptive, he does give an outline of his own "alpha-synthetique" system, which he abbreviates to the convenient name of ALSYN. I must admit that I have found it a little hard to apply this scheme, but this is probably because I have seen only the outline, which to me is characterised by what the English think to be typical of the genius of the French people, a reduction to a closely-woven set of logical abstractions.

3 CODING FOR MACHINE SEARCH

All these three writers have advanced beyond their predecessors in one very important particular: they take into account the vast amount of work now being carried out on the principles of coding for searching the literature by machines. In his paper for Unesco in 1950, Classification, coding and machinery for search, Ranganathan took up the position which he still maintains, that the much-praised efficiency of machine searching has not yet been proved, and that some kind of synthetic classification will be in any case forced on the makers of machine codes if they are to avoid the immense searching labours that are made inevitable by random codes. The same view, generally speaking, has been adopted by Vickery, though he differs on some points. He and de Grolier have discussed in detail the work of teams dealing with machine coding for information retrieval and for mechanical translation. It has been suggested that the relevance of the latter work makes it useful to adopt the term "codification" instead of "classification", which is held to be narrower in meaning. Without entering into a controversy over terms, I shall continue here to use the term preferred in England, "classification", while readily acknowledging the necessity for widening its meaning beyond the mere arrangement of books on library shelves.

31 Limitations of Mechanical Retrieval Systems

Vickery's latest papers, I am glad to say, contain some sharp criticisms of the machine theorists. They were presented to the recent conferences in Paris and Cleveland and are not yet published, but they incline to the view, with which I am in full sympathy, that where machines are wanted is in putting information into retrieval systems, and not in getting it out of them, as has always been taken for granted. Once a document or piece of information has been coded, its filing into a systematically arranged collection of other documents is a purely clerical operation; whereas the essence of getting information out of the system is the establishment of relevance - the relevance of the information scanned to the information sought. I do not see how, for this operation, machines can ever be expected to replace the skill and knowledge of an experienced librarian or documentalist.

Another criticism with reference to the present situation only, appears in the paper submitted to the Cleveland conference by Dr de Grolier. This paper examines briefly the several contemporary schools of thought engaged on designing coding systems, and makes a welcome plea for greater collaboration and the breaking down of prejudices. I was disappointed only in that it did not go further and give more precise details of what lines de Grolier himself thinks should be explored. Let us hope that the Cleveland conference will be somewhat more productive of useful proposals than was the Washington conference.

4 CRANFIELD EXPERIMENT

So much for a necessarily brief glance at recent comparative studies of principles and theories. An important piece of practical research is now being conducted in England at the College of Aeronautics at Cranfield. Aslib has organised a test which will consist of indexing by four different indexing systems, some 20,000 documents dealing with aeronautical subjects, and then testing the efficiency of the systems in answering actual enquiries. One of the systems is a faceted classification produced in a matter of only a few months by Vickery and J E Farradane, and the March, 1959, issue of the Journal of documentation contains Bulletin 5 of the Classification Research Group, a discussion of some practical problems arising out of the use of this system. Its value is proved to me by the direct relevance of the discussion to some work of my own on a system for documentation in the field of Occupational Safety and Health.

We can see, then, that although comparative classification may be in its infency as a recognised branch of classificatory science, nevertheless sufficient work has been done on both theoretical and practical sides to allow us to see the value, indeed the necessity, of using this method of study. I should now like to put forward some suggestions for future lines of development which I think might profitably be pursued.

5 FUTURE LINES OF DEVELOPMENT

Perhaps the most obvious of these appears to be a comparative study of the arrangement by existing schemes of a selected number of documents, in the manner of Ranganathan's Heading and canons for cataloguing codes. This is certainly what is being done at Cranfield, but there a single subject field was chosen and each of the systems had to be developed more or less for the purpose of this particular project. What I have in mind now is the comparison, over a much wider field, of what system-makers have already done themselves to cope with everyday library problems.

51 Wider Coverage

This would be a rather elementary exercise, however, and I have some doubts as to whether it would in fact be worth doing. In my experience, the feeling of dissatisfaction with existing schemes is so widespread that we might be justified in assuming that such a survey would tell us very little more than we know already. On the other hand, these schemes have been built up on a bssis of practical experience, and some at least of their methods deserve consideration. Vickery, for example, in Appendix C of his book, compares the categories actually used in the natural sciences in Colon and UDC; and in my chapter on Classification in the Aslib Handbook of special librarianship I gave brief treatment to the various methods of revision. It might therefore be useful to look at this kind of specific feature, as they seem likely to have to be incorporated into any future scheme. More, I feel, might be made in this way of the experience of Insdoc, where they have been classifying the same articles by Colon and UDC for sometime. Two points that strike one immediately in the Insdoc list are the greater simplicity of Colon's notation, and the lack of detail in its schedules, which is due, I am told, to their classifying with the title only before the text is released.

52 Basic Classes

One of the major problems to be faced by any system-maker is the recognition of what are traditionally called "basic classes", and the influence of the completely synthetic approach exemplified in some machine systems, especially those that rely on purely random coding, has tended to conceal the importance of this. Whatever we call them, "subjects", "fields of study", "basic classes", these partially-comprehensive groups are absolutely necessary to any general system of classification. Indeed, even in making a specialist system, where one begins by naming the subject one is going to classify, one cannot escape the problem, because writers will produce documents that cover several of what appear in the schedules as separate classes. To give one example only, in Occupational Safety we have the separate hazards "Fires", "Explosions" and others; but we must also have a partially-comprehensive heading "Fires and explosions" because they are often treated together in the same document.

53 Basis of Enumeration

So far, the naming of basic classes has been a more or less subjective process; Bliss certainly referred to the educational and scientific consensus, but it is well known that there is no unanimity whatsoever about this consensus. The Classification Research Group has recently begun to give some attention to the problem, and is investigating the concept of "levels of integration" to see whether it would provide an acceptable scientific basis for deciding on the choice of main classes. Professor B M Kedrov of the Moscow Academy of Social Sciences, in a paper presented to the Second International Conference on the Philosophy of Science in Zurich in 1954, and elaborated in Voprosy pilosofii in 1955, also studied the problem of reducing a ramified classification of the natural and social sciences to the linear type required for arranging documents. His classification was founded on dialectical materialism, and contained several features that closely resembled the outline system resulting from the use of the integrative levels. Collaboration on the selection of basic classes which must probably be postulates afresh for each epoch as a preliminary step to the construction of a new general scheme of classification, therefore, shows every sign of being desirable and useful.

54 Special Classifications

With only a few exceptions, the specialist systems that have recently appeared in such numbers have been worked out more or less in isolation. It is true that many of them have used the techniques of general schemes, but they have not been compiled with a view to incorporation in the general schemes. All the schemes made by members of the Classification Research Group, for example, have used Ranganathan's technique of facet analysis, but only two of them, for Management and for Food Technology, were intended to be expansions of the Colon scheme. An immensely detailed classification for Agriculture has also been produced as an elaboration of Class J in Colon, by Dr D B Krishna Rao in India. This is probably the best example to date of a faceted scheme, of the original Colon type, made for a special subject. Lately, another exercise in integration has taken place: the system made for Management, and another being made for Community Development, have been examined as possible components of the Social Science Classification made by Miss Barbara Kyle for use in the Unesco Social Science bibliographies.

55 Experience of UDC

By far the greatest amount of experience in expanding special subjects within a general framework has of course been gained in the development of UDC, and the influence of modern theories, in particular that of facet analysis, is obvious in some of the latest publications - in 669 Metallurgy, and in 621.039 Nuclear Technology, for example. Dr Donker Duyvis, and Mr G Lloyd of the British Standards Institution, have both expressed the view that UDC ought to take new thought into account, and that its structure is sufficiently flexible to allow the incorporation of new techniques of construction.

6 COMPARATIVE CLASSIFICATION

What particularly interests us here, however, is not so much the process of integration, important as that is, as the comparative study of the techniques of making general and special systems. It may well be that this should form the core of comparative classification, because the specialist systems are likely to provide the testing grounds for new theories. Less labour is involved, while there is at the same time greater pressure on us to produce systems to meet specific needs; all the CRG systems, for example, have been made to order, in response to the wish of subject specialists. We have not yet answered the question as to whether the techniques that prove satisfactory for specialist systems will be useful in making a general system. Can we formulate general principles for choice of facet sequence? If the answer is yes, then I can see no reason for maintaining the view that the requirements of the two types of system are incompatible. This view is held, I should say, by the majority of specialist workers today.

61 Notation

When we turn to notation, we find an almost complete lack of evidence that would enable us to choose a satisfactory form of code. Many pronouncements have been made, no doubt, and a great deal of work published. But the problem that is unresolved in my mind, and I suspect in the minds of many others, involves the psychological acceptability of different kinds of notation. It is obvious, for example, that the more species of symbols one is prepared to use, the shorter will be the length of the notation of complex subjects; and we all know that one of the strongest and most persistent criticisms of UDC symbols is their extreme length. Ranganathan has demonstrated many times the great superiority of Colon in this respect. Yet my own experience leads me to think that the most important single features of notation in a classification system although not for machine coding is that it should convey clearly a recognisable and familiar sequence, and that users are content to accept longer symbols for their subjects because they are not repelled by their appearance. The notation, in fact, should not interpose an unnecessary degree of internal complexity. But it may be that this consideration for the aesthetics of notation must be sacrificed in this technological age, like so many other aesthetic considerations.

7 NEED FOR HUMAN INTERPRETATION

It will have become obvious by these remarks on notation, if it was not already obvious before, that I am implicitly taking for granted the presence in the information retrieval system of a human operator - manifestly a large assumption today. I am quite happy to be called medieval, scholastic, reactionary, or any other adjective suitable to apply to those who wish to hold up the march of mechanisation. I am unrepentant, and I stand by the words of Ranganathan some years ago: "At the final stage, documentation service to living men should be done by living men". But a great deal of our comparative studies will be concerned with machine techniques, for it is imperative that we should discover the power and the limitations of machines. The matter of notation presents an interesting example of complete contrast. All kinds of details have to be taken into account when planning for a human operator, and I have just said that we know very little about the factor of acceptability; the machine, on the other hand, has little aesthetic sensitivity, and is happiest with a binary notation which would be almost incomprehensible to a human.

72 Machine Performance

It would be quite superfluous to embark here upon a description of any of the multitude of machines whose proud owners already fill fat volumes with their praises. I do not conceal my astonishment and admiration at their performances. I can find only one fault, common to all, or nearly all: that they were not designed for information retrieval, and consequently the retrieval system has to be suited to the machine and not vice versa. I do not doubt for one moment that a jet engine would be capable of driving my lawn mower, but it is scarcely an appropriate match on either side. If it is true, as I have heard, that our documentation colleagues in the USA are beginning to be put under pressure from the management to adapt their systems to suit the firm's computer, this is a most depressing situation which is bound to have a bad effect on their theoretical and practical work.

73 Mechanical Translations

The latest analogy to be drawn in the sphere of machine theory is with mechanical translation. It is clear that a classification scheme is a kind of artifical language. S C Bradford, of the London Science Museum Library, who was perhaps most responsible for the success of UDC in England, used to believe that UDC could act as an international dictionary; and certainly the recent trilingual edition serves this purpose to a quite considerable extent. Dr. Ranganathan has long used the phrase, "an artificial language of ordinal members" to describe a classification scheme.

74 Limitations

It is this specific relationship that has been the subject of the conference just concluded at Western Reserve University in Cleveland: "Standards on a common language for machine searching and translation". It is hard for me to be very optimistic about the results of such a discussion, because I have so many doubts about the appropriateness of machines for literature searching, but I certainly share the hope expressed by Dr de Grolier in the paper he submitted - that at least the conference would succeed in drawing more closely together the efforts of the various people who are working on problems of classification. First reports seem to show that the conference was in fact a greater success than I had thought possible.

75 Need for Objectives

But it is necessary for us to be clear about our objectives before becoming enthusiastic about new techniques, and there are some very pertinent differences between translation and information retrieval. In translation, one is dealing with a text of specific known content. In the process of matching one language with another, the limits of expression and information are quite clearly defined, and leaving aside nuances of style, one can say that the production of a satisfactory "approximate" translation can be reduced to a mechanical operation because the limits are definite and known. This is not the case in information retrieval. Very often, the expression of the question is vague and imprecise, but even if it is not, the chances are that the limits of the answer cannot be given with precision. It is obviously hard for an enquirer to be quite definite about what he does not know. As is often said, then, the central problem for information retrieval is the detection of relevance - even, in a well-documented subject, of minute degrees of relevance. The greater the skill of the documentalist, the less will be the mass of literature that has to be sorted by the enquirer himself. No doubt a mechanical search can produce bibliographies and abstracts; but all my own experience tells me that it is the skill and flair of the documentalist that really save the time of the research worker. I know that Professor Bernal, for example, reported at Washington that the output of scientific literature has reached such proportions that many scientists now prefer to return to a seventeenth centruy technique and get their information by direct contact. I know, too, that this is a very obvious and efficient technique; I often use it myself. But I believe that to adopt this technique as a regular system would very soon impose an intolerable burden, one that a scientist accustomed to a good information service from a specialist library would flatly refuse to accept.

76 Lack of Proper Comparison

One of the most important tasks facing us, therefore, is a detailed statement of the needs and processes that arise in an information retrieval system and a mechanical translating centre. Some years. in an article in American documentation, Mr Vickery showed quite clearly that most of the claims made for the superiority of machine literature searching over conventional manual methods could be dismissed because important parts of the retrieval process were being left out of the comparison. So far as I know, this argument has never been refuted.

77 Need for Financial Support

It has, however, been completely ignored, and one of the most disheartening features of the present situation is that nearly all existing comparative studies have been made without any financial backing. On the other hand, money has been poured out with the utmost prodigality for work with machines - and most of the workers on them go on ignoring the immense progress made over the last few years in both the theory of classification and also in its application in working information systems. This was well illustrated in the Washington Conference of 1958: an immense amount of time, labour and money went into this prodigious exercise - and to what end? " Parturient montes, nascetur ridiculus mus".

78 Role of FID

Much of the impetus for these great advances in classification has come from the FID. If only a fraction of one per cent of the resources squandered on machinery had been available for this work, I have little doubt that we could have produced something much more spectacular. It may be one of the most difficult things in the world to prove that a straight line is usually the shortest distance between two points; but when we see our American friends spending several years on proving mathematically that a hierarchical structure is sometimes useful in coding because class headings include their subdivisions, we begin to wonder whether such pursuit of ultimate truth is really the best course of action just at this time. Would it not be better simply to call it a postulate?

8 CONCLUSION

We can all appreciate the value of fast machine searching in a large centre where the objectives of the search can be limited and more or less exactly specified as, for example, in seeking particular data, properties, and so on. But in my view the future of classification and coding study must be related to actual working conditions, and it would be great foolishness to ignore the unique contribution made by the human operator in the type of retrieval system that is most commonly found in which information, not data, is the objective. Although the Washington and Paris conferences offer few encouraging signs of an appreciation of this among machine theorists, nevertheless some of the personal contacts made there, at the recent Cleveland conference, and above all at the Dorking conference in 1957 (a really productive conference): do indicate that more helpful collaboration is possible. The systematic study of comparative classification and codification is the only sure way of bringing out the advantages and disadvantages of all the many systems now being developed. Without necessarily committing ourselves to a search for the ideal, universal system, we should surely be able to formulate some postulates basic principles and having a wide validity, and practical means of putting them into operation in different circumstances. Here is work that is most appropriate for an international body. I am confident that Unesco could be persuaded to take an interest, and it would be most fitting and profitable for FID to continue its work on classification along these lines.

Paper R

PRE-NATAL CLASSIFICATION AND CATALOGUING ON ITS WAY

S R RANGANATHAN

Enumerates the findings of intellectual experiment in pre-natal classification and cataloguing. Describes the achievement of BNB in centralised cataloguing and its near-pre-natal catalogue card service. Digests the findings of the pilot project of Cataloging in Source which printed the catalogue entry in the book itself. Shows that its difficulties will be avoided by printing only the call number and the supplement to Author Statement on the back of title-page and releasing the catalogue card independently but nearly simultaneously with the release of the book itself.

1 GENESIS

It was 12 August 1948, my fifty-sixth birthday. I spent that afternoon in the Library of Congress, Washington. At 8 in the night, I was called on to address a meeting of librarians at the Whittall Pavilion. I was drawing a picture of the library development in India, as I would like it be. The resonance of the audience made me enjoy riding on my imagination. After refering to the time lag inherent in the then current method of central cataloguing, I said(0) "We hope in India, God willing, to eliminate time lag of any kind. Before we can see whether it is practicable or not, I want to give you that method, so that the Library of Congress may experiment upon it and report to us about the possibility of it. Indeed, to put it in one word, we propose to practise Pre-Natal Classification and Cataloguing (prolonged cheers). You understand what I mean. We propose to persuade the publishers to send the final form proof copy to the National Central Library and in return promise to classify and catalogue the books before the copies are struck and are sent for binding, so that the book may come out of the press with the Call Number printed on the back of the title page - (Clapp: With the Colon Classification Number!) Any classification, it does not matter. (Laughter) - with the Call Number tooled on the spine... Well that is the method that we would ask the Library of Congress to venture upon. When I proposed this to our National Central Library Committee, they all said that I was certainly becoming mad (laughter). But to my great relief, I find my Scandinavian friends are already thinking about that, and they said, "Don't be afraid. Before your huge National Central Library comes into existence, we hope to have practised it for one or two years". Dr Clapp, who presided over that talk and has recently stepped out of the Library of Congress has succeeded in making the Library of Congress carry out some such experiment The experiment was completed early in 1959; and the fall 1959 issue of the Library resources and technical services contains three papers on the findings of the experiment.

2 INTELLECTUAL EXPERIMENT

Let us go back and begin again with 12 August 1948. Since that time, this concept of pre-natal treatment of books continued to develop in its own pre-natal stage. My experiment with it could only be an intellectual experiment. For, it was too early even in the rising phase of its current cultural cycle to expect facilities in India for a real, objective experiment. In the first place, our financial resources are too small even for the physical needs of the masses in the country and could not be diverted towards intellectual needs of some remove such as experiments on pre-natal classification and cataloguing. The library profession itself is too small and in the formative stage for a sufficient number of librarians to function as spearhead and to do research in the field. On the other hand, as it is usual with any newly sprouting plant, the profession has first to survive the smothering by weeds and predatories, known to be more persistent and stronger in any field than the crop plant itself. Extra-professional cunningness and strength and professional indolence, as usual, make the predatories misinterpret the call for research and mislead the public and the powers that be, from the vantage positions they come to occupy within the profession. Thus, some good opportunities for the pursuit of the problem of pre-natal classification and cataloguing and other problems in library science are being dissipated away. But such an initial mishap in a profession should not kill the apical bud of research. It should be carried on at least as an intellectual exercise. And so it has been done.

21 First Finding

The first finding of the intellectual experiment related to an estimate of the national saving which will accrue from pre-natal classification and cataloguing. This estimate was made in 1954. It has been published in my Headings and canons : Comparative study of five catalogue codes (1955). The national saving is estimated to be 79 per cent(1). This will be the immediate visible saving in the cost of cataloguing.

22 Second Finding

But we should also take into consideration the invisible deferred saving due to the release of a newly published book for public use virtually on the very day of its arrival in a library. We know of its qualitative existence. But it is difficult to make a quantitative estimate of the saving in terms of social benefits.

23 Third Finding

There is another invisible saving. The staff spared from the unwanted repetitive work of classifying and cataloguing one and the same book in hundreds of libraries can and will be turned on to do intimate, personal, reference service to readers in the floor of the stack room. The absence of reference service, adequate in quality and sufficient in quantity, is now resulting in the relative running to waste of the recorded thought collected and socialised by the library system of each nation. The ultimate stage in the library's main purpose of ploughing back into the appropriate human mind all the recorded thought, in a pleasurable, assimilable, and productive way can only be done by a human being(2); and that human being is the reference librarian. The failure to provide him in the necessary abundance makes our big and small libraries alike wasteful institutions if not a mockery. To get a full social return on our investment in libraries, there should be one reference librarian for every fifty readers using the library in a day. For, on an average, each serious reader will need reference service at least for ten minutes when he goes to the library to choose his books. In other words, a reference librarian can attend efficiently to six readers in an hour. In his working day of eight hours, he can do service only to about 50 readers, stated in round figures. At present, the entire staff of a library is made to do only administrative work, the routine of circulation work, and maintenance work, and the technical work of classification and cataloguing. In the Madras University Library, I used to put one-fourth of the staff on technical work, and one half on other administrative and routine work, and thus spare one-fourth of the staff for reference service which is the summum bonum of library work. The authorities of the university gave me freedom to do so, though it was novel at that time. To-day, one generation later, I see the good done by it to society. But this was not sufficient. With the books given pre-natal treatment by a National Centre I would have put one half of the staff to reference service; and it would have given a fuller social return.

24 Fourth Finding

It is an advantage to have the call number of a book printed on the back of its title page and on the spine of its jacket and also tooled on the spine of its caring.

Inference: the call number of a book should be established and communicated to the publisher or printer as the case may be before the preliminary pages reach the proof-stage.

Inference: a complete set of the corrected galley proof - paged galley proof preferably - should be sent to the National Centre as soon as the last page of the text is reached. Then the call number can reach the press before the preliminary pages are composed and are made ready for printing. This arrangement will give sufficient time for fixing the call number of the book and the class numbers for certain necessary subject-analyticals which should be given as a minimum in the case of a few books. There will be neither the pressure of undue rush on the classifier or an uneconomical hold-up at the printing end.

25 Fifth Finding

Establishing the main entry of the catalogue - indeed the unit card(3) suggested for printed catalogue cards - can be done a little later. To do this, the publisher or the printer should send to the National Centre a complete set of the proof of the preliminary pages and information about the number of the last page of the book, about the number of plates, maps, etc not included in the pagination, and about the format of the book. The above information is necessary to make the collation and part of the catalogue entry accurate. The proof of the preliminary pages is necessary to make the other sections of the catalogue entry accurate. If a book belongs to a series and if the name of the series is not printed in the half-title page or the title-page or anywhere else in the preliminary pages, the publisher should also send information about the series along with the information on collation. Between this stage and the release of the book after binding, there is bound to be a week, or at least two days. This period is quite sufficient for the catalogue entry to be established. Time need not be taken at this stage to determine what subject analyticals should be indicated, as the class numbers for them would have been already made at the stage of classification as stated in section 24. Time need not be unduly wasted on the choice and rendering of the name-of-author - whether personal or corporate - if the standard for the supplement to Author Statement established in India in 1954(4) and described in my Classified catalogue code (1959)(5) is implemented. Thus there will be no pressure of undue rush on the cataloguer nor any hold-up whatever at the printing end.

26 Sixth Finding

The agency for the supply of the printed catalogue card should be, not the publisher of the book, but the National Centre. The agency for the production of the National Bibliography should be chosen as the National Centre for pre-natal classification and cataloguing. Thus, the National Centre can utilise the result of its labour for each of the two purposes of compiling the periodical issue of the National Bibliography and of supplying printed catalogue cards to libraries on order. This Centre should be an autonomous auxiliary to the National Central Library, with copyright privilege, quite distinct from its own classifying and cataloguing sections.

3 REAL EXPERIMENT

Real experiment has been taking place in different countries in central cataloguing and supply of printed catalogue cards from a National Centre, though not as pre-natal work. The experiences in these centres have been of value, for part of the operation implied in pre-natal work.

31 Denmark

The National Centre in Denmark(6) is the Bibliographical Institute. It was founded in

Copenhagen in 1937 with a state aid of Rs 15,000 in the first year and a staff of one. By 1948, the year of my visit to it, the annual budget was Rs 150,000 including a state grant of Rs 27,000; and there was a staff of 12. The printed catalogue cards are ready within two weeks of the receipt of the books. The cards were all printed in anticipation. Two problems turned up. The first was storage space. The second was the determination of the number of copies to be printed. The cards of all the books are not demanded in equal number. The cards of some are sold out completely before the demand ends; the cards of others are left unsold. No reliable means could be found out for the determination of the differential number of cards likely to be in demand for each book.

32 Great Britain

The BNB (British National Bibliography(7)) was founded in 1950. Viewed from the angle of managerial and commercial efficiency, it reflects the British genius. Its council is a private company registered under an act of Parliament as a non-profit-making company. It pays no dividends and pays no income tax. But as a private company, it relies entirely on income of the sale of its services. It gets no support from public funds. It has to be financially self-supporting. Thus public service is advantageously left in quasi private sector. It has an understanding with the British Museum Library. It gets from that library all the books received under the copyright act just for classification and cataloguing purposes and return.

321 The Time Table

Let D denote the day on which a book arrives at the Copyright Office in The British Museum Library. Then the time-table may be expressed as follows:

Day	Stage of Work
D	Arrival at Copyright Offices
D + 1 (pm)	Arrival at BNB Office
D + 2	Catalogued and classified
D + 3	Catalogue entry and classification checked
D + 4	Entries typed for printing
D + 5	Final check of press copy
Second Tuesday after D + 4 if D + 4 is not Monday or Third Tuesday after D + 4 if D + 4 is Monday	Appearance in the printed Weekly List of BNB
Monday before the appearance of the Weekly List	Receipt of the repropulla of the classified Part of the Weekly List
Wednesday after the appearance of the Weekly List	Completion of the preparation and filing of Master Stencils of Catalogue cards
From Thursday after the appearance of the Weekly List	Supply of printed Catalogue cards begins

Thus printed catalogue cards are available within 23 days of the receipt of the receipt of a book in the Copyright Office in a few cases and within 16 days in all others. By shortening the time taken by the printer, this timelag can be reduced. But it can never be less than one week.

322 Consumer Reaction Before De Facto Service

In 1949, the Committee set up by the British Library Association, for investigating printed catalogue card service, reported that it would not be economical. All the same there was a considerable demand. In response to this demand, the Lambeth Public Library System brought into vogue a method of cheap local production of printed catalogue cards for a large library system. But this was not economical for a single library or for a small and medium sized library systems. But the BNB could not go forward to meet this demand on grounds of cost and storage space. This was the position till 1956.

323 Consumer Reaction After De Facto Service

By 1955, the currently used method of stocking photographical stencil copies of the printed entry in the BNB and using them to print off just the cards needed to fill the order each day, with a certain type of addressing machine, took final shape. By that time the BNB had also accumulated the small capital needed for the purchase of the required machinery. A market survey by mail disclosed support by about 200 libraries requiring between them about 1,500,000 catalogue cards. Accordingly the printed card service was begun by the BNB in 1956. It is now able to keep up "supply within 24 hours of order". The daily supply amounts to about 6,000 cards, with a single set of machinery and the staff going with it. This service has made a great favourable impact on the libraries. Many libraries make up their book-order for currently published books on the basis of the BNB Weekly List. The supply of printed catalogue cards arrives in the libraries simultaneously with or even earlier than the supply of books. This is virtual elimination of time-lag to the full satisfaction of the Fourth Law of Library Science. I saw the realisation of such a great respect to the Fourth Law during my visit to BNB in May 1957. I also have the greater appreciation of this service on the part of the libraries.

324 One Week's Delay in Some Cases

But a book-order may also be made on the basis of the publisher's advance announcements. In such a case, there may be a delay of one week more in releasing the book for readers' use, when the library makes its own catalogue cards.

The BNB is not resting on its cards. During my visit in September 1959, Mr Wetts told me of the investigations in progress to reduce the time lag of one week involved in the work of printing.

33 Deutches Bucherii

In 1956, I visited the Leipzig Bibliographical Centre in East Germany. It has been publishing the DB (Deutches Bucherii), the German Bibliography, for several years. It is not attached to a Copyright Library. It gets a copy of every German book published, on a voluntary basis promoted by persuasion. Unlike the BNB, the DB maintains a library of its own, made of all the books received for inclusion in the bibliography. With this library, it gives many other services to readers, libraries, publishers, printers, and binders. These services form part of the persuasion that brings in a free supply of newly published books. The DB has its own printing press. For every book, it first prints the catalogue card. After the card is printed, the type-set is assembled at the proper time to print the DB as a list. This is my impression. If this impression is right, when BNB has its own internal printing press, it may be able to make the Master-Stencils for individual entries even before the Weekly List. This would eliminate the one week's delay mentioned in section 324.

4 INTELLECTUAL EXPERIMENT AGAIN

The success of the card service of the BNB led to reviving the intellectual experiment on pre-natal work, during my visit to BNB in May 1957. I asked Mr Wells, "When I was with you a few months ago, you told me that my larger dream of Pre-Natal Classification and Cataloguing could be made a reality. I have recorded this feeling of yours in a Memorandum of April last on the Indian Bibliography prepared at the request of the Ministry of Education of the Government of India. Have you anything more to tell me on that dream of pre-natal work?" Mr Wells said that the BNB had earned the respect of the publishing trade and that a majority of publishers would willingly co-operate in a scheme for pre-natal cataloguing. The following were the findings about the possible difficulties in making the project cover all the publications with the accuracy needed in the catalogue countries:

1 Last minute changes in a book after the page-proof-stage;

2 Failure on the part of some publishers to send the proof; and

3 Establishment of an operational routine in dealing with the BNB, on the part of the publishers and printers, and a strict adherence to it.

Finally Mrs Wells added, "In spite of these difficulties, it is my opinion that pre-natal classification and cataloguing would be possible in such a large number of cases that it would be very well worth-while".

5 REAL EXPERIMENT AGAIN

51 Council of Library Resources

My hopes for real experiment in Pre-Natal Classification and Cataloguing began to rise high with some confidence, when I learned in September 1956 at the Munich Conference of the Ifla, about my dynamic friend Dr. Verner Clapp's new assignment as Director of the Council of Library Resources Inc being then newly established by the Ford Foundation. My hopes have not been ill-founded.

52 Pilot Project

For, Dr Clapp does not allow grass to grow under his feet. In fact, he actually set up a pilot project in 1958. It was November 1958. The hospitality kindly provided by the American Library Association enabled me to visit and address several Library Schools in USA on my way to the Washington International Conference on Scientific Information. I heard from several friends about the pilot project set up by Dr Clapp under the name Cataloguing in Source. I was delighted. I wrote to Dr Clapp from Rutgers on 13 November 1958. In it I expressed my joy. I also raised some points for discussion. I give below in succession some extracts from my letter and from Dr Clapp's letter of 26 November.

521 Name of the Project

R: Being back in USA, my mind recalled the day in August ten years ago, when the term "Pre-natal Classification and Cataloguing" was brought out of me by your staff meeting in the LC. I am glad to learn about your having taken up this problem in your new position.

C: I much prefer your name "Prenatal Cataloguing" to "Cataloguing at/in source". Yours is a charming and expressive phrase; ours is ugly and ambiguous. I have, whenever speaking of Cataloguing in Source, alluded to the meeting in the Whittall Pavilion where you described "prenatal cataloguing" and promised that India would adopt it before any other country.

(A wish - not a promise - and alas, what a rash wish it had turned out to be!)

522 Disfugurement by Printing the Catalogue Entry in the Book

R: Assumption - The proposal is to print the LC card on the back of the title page or on some other page having free space. I think this will disfigure the personality of the book more than what is necessary to implement centralised prenatal classification and cataloguing.

C: Disfigurement. The experiment now being undertaken by the Library of Congress will not try to settle all the questions relating to Cataloguing in Source. It is anticipated that there will be many problems. Disfigurement is one of these. There will, accordingly, be experimentation in the location, style, size, and other characteristics of the catalog entry with a view to arriving at least disfigurement.

523 Minimum Cataloguing Aid vs Whole Entry in the Book

R: The reason for this step is said to be to enable some libraries to reproduce their own catalogue cards photographically. How will it be cheaper in time or in money for those buying the cards from the National Centre?

The Indian Standard established in 1955 for the back of the title page of a book provides all the necessary help for establishing the heading in the catalogue entry. Though it has not been done in the first attempt, it is the intention to recommend the printing of the call number of the book at the centre of the back of the title page. My own recent books have been printed that way. The Oxford University Press in India has been implementing this standard. This standard and the BNB's method of supplying printed cards will secure pre-natal classification and cataloguing, make them effect all the necessary economy, and abstain from putting more than a minimum on the back of the title page. These problems are discussed in extenso in the fourth edition of my classified catalogue code which came out on 20 October 1959.

C: Justification for inclusion of the entire entry. You suggest that libraries can now secure the complete entry by purchasing a card from LC or H W Wilson Co. But the loss in time, and the delays and irritations required by sidetracking a book and matching it later with the cards when received, amount in the gross to very considerable costs and losses. The objective is to assure that the book and the cataloguing information arrive together. There is only one way to do this.

(Section 323 has shown that the cards do not generally arrive later than the books, in the BNB practice).

524 Who are the Beneficiaries

R: What will be the percentage of the copies of a book, which will be absorbed by libraries? Individuals will not only find no use for the catalogue entry, but some may feel hurt that the personality of the book has been disfigured for the sake of the library profession. The items recommended by the Indian Standard to be printed on the back of the title page are no doubt exotic. But they are not very conspicuous.

C: Cataloguing and classification will be of use not only to the purchasing library, but to book stores, individual purchasers of books, and to authors.

525 Cataloguer's Camera

R: For the libraries which do not have equipment for photographic reproduction - these will be the largest group - the cards will have to be purchased from the National Centre and the printing of the catalogue entry in the book itself cannot serve any useful purpose. Even in the case of the other libraries, there is a strong case for saving the time and money of the service-libraries being wested in each of them doing the same impersonal repetitive work of printing the catalogue cards.

C: Equipment for photographic reproduction on cards. In addition to the "cataloguers' camera" which is now undr development, there are several other devices now in the development stage. Sooner or later every library (and even office) will be able to procure a simple and inexpensive machine for creating catalogs. This equipment is likely to be "a new kind of copying machine (under Rs 2, 000) portable, dry process, reproducing positive copy directly, and reduced interchanged"(9).

But to operate such a machine, the cataloguing information is necessary.

No country has a monopoly on ingenuity and intelligence in these matters. Let us try out our various systems, and learn from each other. If "Cataloguing in Source" doesn't work, I shall be the first to come borrowing from you.

6 EVALUATION OF THE PILOT PROJECT

The pilot project has been carried out in a well-planned scientific way. 230 publishers participated. And a targent of 1,000 books was fixed. Three evaluation papers were presented at the joint program meeting of the ALA Resources and Technical Division and its Cataloguing and Classification Section during the ALA Conference in Washington on 22 June 1959. These are of great value. These confirm some of the findings arrived at by speculation in sections 4 and 5. The findings of the intellectual experiment and of the real experiment are correlated in this section. In doing so, the intellectual experiment will be denoted by "R Method"; the real experiment in the BNB by "W Method"; and the real experiment in Cataloguing in Source by "C Method".

61 Publishers' View

The findings of the "C Method" on publishers'(10) view were got by the Library of Congress in two ways:

1 Questionnaire sent out by the Library of Congress to publishers who participated in the pilot project; and

2 Conference in New York City between officials of the Library of Congress and representatives of publishers, some of whom had participated and some had not.

611 Tight Publications

In C Method, there will not be any space for printing the catalogue entry in tight publications. The R and W Methods bye-pass this difficulty as the catalogue entry is given in an independent card.

612 Disfigurement

A number of publishers felt that the printing of the catalogue entry, according to the C Method, on the back of the title page spoiled the appearance of the page, though it did not raise any difficulty in designing work. The R and W Methods totally avoid this problem.

613 Additional Cost To The Publisher

Fifty two of the 81 publishers answer of the question reported no additional cost worth mentioning. The average additional cost estimated by the remaining 29 publishers was Rs 20 per book. One extreme estimate was Rs 100 per book This is for the C Method. In the R and W Methods, even the 29 publishers are likely to withdraw the estimate. Some publishers, not participating in the pilot project, anticipated additional work demanding an additional full-time clerk on the pay roll to have charge of the work with the National Centre. This has been found to be imaginary, by those participating in the pilot project.

614 Delay in Production

The majority of publishers did not experience any delay. When a book had to be put on a tight production schedule, there was a slight but not serious delay. This is in the C Method. In the R and the W Methods, there is likely to be no delay even in the tight production schedule for a rush publication. For the only matter to be supplied by the National Centre to the printer for insertion on the back of the title page is the call number of the book. This can be sent out even before the preliminary pages are composed or at least at their proof stage. But in the C Method, it is desirable for the National Centre to have the proof of the preliminary pages also or at least the data for them, before the matter for the catalogue entry can be completed and sent to the printer.

615 Anxiety About Production Schedule

Publishers working on tight production schedules feel worried and anxious about possible delay. The cause for this is less in the R and W methods than in the C Method for the reasons given in section 614. Moreover, practice will soon bring about a steady flow of information and materials between the publisher and the National Centre. One method of minimising delay and cause for anxiety has been suggested to be the sending of a duplicate proof to the National Centre at the same time as the proof was sent to the author. This is the suggestion in the R Method.

616 Mailing or Messenger Arrangement

The mailing and messenger arrangement were generally found to be satisfactory. But the publishers of New York City, the major publishing centre, would prepare the National Centre to be in New York City. But the Library of Congress did not believe it to be possible. After all, there are publishers scattered in other towns also. In India, publishers have not concentrated in one city. There are equal concentrations in about twelve cities. But, perhaps for the books in a single Indian language, there may be a good concentration in a single city.

617 Supplementary Data

Where the page proof did not supply complete information for cataloguing, a data sheet was used to supply additional information. Many of the publishers found the design of the data sheet quite helpful. Two publishers felt difficulty. Some felt that the filling of the data sheet involved extra work. In the R and W Methods, there will be less need for data sheet. A proof copy of the preliminary pages can be supplied to the National Centre.

618 Offset Printing and Its Effect

Offset process is growing in the production of books. Here, there is no proof stage. The National Centre will have to be given a complete printed copy of the text. The time left for classification is only the time for composing the preliminary pages and proofing the same. This will be totally inadequate for the C Method. Even in the R and W Methods, where only classification should be done and only call number is to be inserted on the back of the title page, fixing the call number may turn out to be rush work. Perhaps there will be at least a one day interval. This may prove sufficient in the majority of books. But the printing of the title page of an occasional problem book may have to be held up a little more.

619 Books Imported In Sheets

Some books are printed in one country and all or some copies are sent to another country in sheets for binding and distribution. In this case, catalogue cards can be produced pre-natal by the receiving country in the R and W Methods. But the C Method will become inoperative, unless the sending country also practises pre-natal cataloguing.

62 Libraries' View

The findings on the Libraries' View(11) were made by a Consumer Reaction Survey group of five librarians, formed as a result of two days' deliberation by the ALA Cataloguing policy and Research Committee at the invitation of the Librarian of Congress. After a series of trials a sheet called "Information To be Assembled for the Interviewer" was designed. Copies of these were sent in advance to an assortment of 200 libraries of varying sizes, public as well as academic, willing to participate in the evaluation work. Many of these libraries had experience with LC cards, Wilson cards, and IBM machines. All these 200 libraries and 33 others were visited by a member of the Survey Team for personal interview. There was a unanimous approval of the project. The findings were as follows:

621 Help in Book Selection

1 Selecting of books for solicitation of gift becomes easier.

2 Books received on approval could be easily arranged by the call numbers.

3 Call numbers help the selection of books from the main library, by branch libraries.

4 Librarians in travelling libraries, who are without a catalogue, will find the call numbers helpful.

5 Class numbers will help in the allocation of the cost to the proper subject head.

All the above benefits depend mainly on the presence of the call number in the book. This benefit is equally present in the R and W Methods and in the C Method. This provides no criterion to choose between the two methods.

622 Help in Bibliography Building

The standard uniform cataloguing will facilitate bibliography-building and the use of bibliographies. This benefit too is equally provided by the R and W Methods and the C Method.

623 Help in Reference Service

The presence of the catalogue entry in the book itself will facilitate the initiation of readers in the use of the catalogue and in the under standing of the subject headings. This benefit obtains in the R and W Methods also, as the catalogue card of the book gives all the help. Perhaps, having the book itself in hand will give a greater sense of concreteness.

624 Help in Circulation Service

The catalogue entry service within the book will help readers to enter the heading and the title correctly in the changing slip. This operation does not exist in the "Book Ticket, Reader's Ticket" method of charging. Even where it may be necessary, there is usually sufficient typographical indication in the title page about the dominant term in the title and about the heading. Thus the C Method has no significant advantage over the R and W Methods.

625 Help To the Maintenance Section

It is beyond comprehension how the printing of the catalogue entry inside a book will help the Maintenance Section as it is claimed in the statement, "anything looking out of place could be quickly checked". It is the call number and the collection symbol on the back of the book that can be of help in this. And in this pre-natal classification and cataloguing can be of no help whatever, whether it be by the C Method or the R and W Methods.

626 Help To The Binding Section

The claim that the catalogue entry inside the book will help the Binding Section in choosing author and title for binding sections has not sufficient substance to balance the other disadvantages in the C Method. Moreover, if the Indian Standard for the Supplement to Author Statement is adopted, all the help for the binding section will be given by it(12).

63 National Centre's View

Apart from the preliminary planning, the actual classifying and cataloguing work in the National Centre(13) began in July 1958 with 25 books. The peak month was the last one of the project viz January 1959 with 233 books. The average number of books handled in a day in the latter part of the period was 11; and the maximum was 18. During the six months of the project, 1,197 books from 158 publishers were classified and catalogued at the pre-natal stage.

631 Time Factor

Many of the difficulties experienced aro out of the short duration of two days allowe to furnish the catalogue entry after the rec of the proof of the text and the notes about cataloguing data, without the actual proof o the preliminary pages. In about 5% of the books, the catalogue entry could not be pri in the book. Further, tight schedule is sai to have produced unusual mental strain and haustion. This will be less in the R and W Methods than in the C Method, as the class number alone will have to be furnished. in that interval in the former methods. Ther can be some more breathing time to establ the catalogue entry which need not go to the publisher for being printed in the book itse

632 Accuracy in Title Portion of Entry

It was not uncommon for subtitle and/o name of a collaborator to be added, deleted or changed at the last moment - that is aft the catalogue entry was furnished to the pu lisher on the basis of the data furnished. I was found to be difficult to eliminate compl the error due to this factor, in the C Meth This error is said to have occurred in 9 pe cent of the books. This difficulty can be el minated in the R and W Methods as the cata logue entry can be finalised after the recei of the final proof of the preliminary pages.

633 Accuracy in Collation

The collation in the catalogue entry wen wrong in 24 per cent of the books in the pil project of the C Method. This has been du to different causes some unavoidable and s avoidable by the proper discipline and routi eventually taking shape at the publishers' e The unavoidable causes centred round the l page of the book. For ordinarily the index had not been printed at the time the data sh had to go to the National Centre. Leaving pagination blank in the draft catalogue entr furnished to the printer with the request th it might be inserted before printing the ent in the book sometimes failed to produce the result. The production schedule in the cas e book is said to have been such that the pre- minary page, which was to carry the catalogue try, had to be printed before the last page mber of the index was known. Page group- gs were not properly indicated in the data eet. This difficulty was often incident in spect of the preliminary pages. The data eet often failed to give accurate information out plates, maps, etc not included in the pagi- tion. These two errors could be avoided with creasing practice. These collation errors can avoided in the R and W Methods with greater rtainty as the whole book would have taken ape before the data sheet of the out-of-the- ay cataloguing details is made up and sent to e National Centre.

634 Accuracy in Imprint

In the pilot project, some of the books cheduled for publication at the end of 1958 nd catalogued on that basis came to be actually ublished in 1959. Unless the printer takes are to correct the catalogue entry before print- g it in the book, there is no remedy to this rror. This fault is said to have occurred in 4 per cent. of the books. The incidence of is high percentage of error in the year of ublication made the Cataloguing Centre feel at the C Method should not be adopted unless e rules for cataloguing would exclude dates. his difficulty will be less frequent in the R ethod, since the final proof of the title page nd its back will be available for the cataloguer t the National Centre.

635 Accuracy in Series Note

It is reported that the Series Note was not ccurate in 5 per cent of the cases. This annot be avoided in the C Method which does ot wait for the proof of the preliminary pages. Even in the R and W Methods, which do wait or it, the inaccuracy can be avoided only if the ndian Standard for Preliminary Pages(14) is mplemented -- that is, all the information bout series is printed on the half-title-page n its back, and not merely on the cover as ome publishers do to-day.

636 Accuracy in Format

It is said that there was error in the size of e book in 19 per cent of the cases in the pilot project. This can be reduced in the R and W Methods, as the book will be much nearer its final size if not in the actual final size, when the catalogue entry is finalised.

637 A Warning About Classification

All the difficulties enumerated in sections 631 to 637 pertain to descriptive cataloguing. But classification is said to have presented no problems, except that occasionally the formation of a new class number had to be done rather perfunctorily. This is partly due to the scheme of classification in use. With an analytico-synthetic scheme, based on postulational approach(15), fitted with schedules of materials and of all categories of common isolates(16), and having the help of a good set of seminal mnemonics(17), mostly it is only a new isolate of the personality category that will have to be provided for; and even this will be needed only occasionally. But, to meet the cases of specialised monographs needing the service of a classifier specialising in a subject, there should be at hand a second who can step in if the first unfortunately has to absent himself from duty when a difficult monograph is his subject of specialisation happens to turn up. Yes; this Maxwellian ghost may turn up in classification though not in the kinetic theory of Gases. That is a warning

638 Need For Expeditor

Another lesson coming out of the pilot project is the need for an expeditor of ability, tact, and untiring nature. This is nothing new in any enterprise in which a tight time schedule forms the very essence. This should not be lost sight of.

7 SOME OVER-ALL FINDINGS

There are some valuable over-all findings of the pilot project.

71 A False Ex-Cathedra Opinion

One of them is re-assuring and heartening. It is the participativeness of the publishers - their willingness to respond to the request of the library profession. In 1954, the Documentation Section of the Indian Standards Institution accepted my proposal to establish some standards for the preliminary pages of a book, in order to make cataloguing depend essentially on the Canon of Ascertainability(18) and produce consistent results helpful to users without undue waste of time of cataloguers. At the ISO/TC46 meeting of the same year in Brussels, my proposal to put this item on its programme got top-priority. In persuance of this, I presented India's standard as a draft standard for consideration, at the TC/46 meeting at Stuttgart in 1956. But some delegates were afraid that the publishing trade would not offer co-operation in this matter. But the findings of the pilot project have proved the contrary even when more intensive participation was asked for. For, we need that the publishers generally "hoped that it would become a permanent service ...., especially if benefits were realised by libraries(19). Only one is said to have "stated that the project was a nuisance, a delay, and an expense". Some felt that if several publishers started conforming to it, the others "would almost be forced to follow suit as a defence competitive measure"(20). This is a wholesome overall finding.

72 Year of Birth of Author

An European colleague - an old bachelor! - said that lady authors would object to have the vear of birth in the supplement to Author Statement. A finding of the pilot project is that there is a pretty strong sentiment of that kind in USA. "In some fields of endeavour to be either a little young or a little old may be a black mark against you. One publisher withdrew from the project entirely on this account. Perhaps the most striking case was that of the lady author ..... who, having married for the first time at a "Later" age was up-in-arms lost her husband learn the unhappy facts of the case"(21). It is good to know this finding. We learn that we should interpret the term"year" suitably. The "year" is needed only to resolve homonyms in author headings. The year appearing in the back of the title page need not have legal or other implications. Therefore, an author can be given freedom to choose any suitable year provided she does not change it later.

73 Pseudonym Problem

Pseudonymous and anonymous books form a problem if the cataloguing practice insists on real-name-entry. In that case, the cataloguig profession may ask for an eel if an inch is given. It may ask for the real name to be disclosed for incorporation in the pre-natal cataloguing. This is wrong. Firstly, authors and publishers may not be willing to reveal right in the book of what they wish to conceal. They would probably tolerate the real name entry, however, for works of authors that are no longer living. In the case of Indian authors, regularly using of pen names, there is no objection to reveal the real name. They often give it in the title page itself in a subordinated way. Whatever it be, this problem should have nothing to do with pre-natal cataloguing, if the policy of the Classified Catalogue Code of basing the catalogue entry on the Canon of Ascertainability - that is only on what is given in the book itself - is followed(22). The thrill of unmasking the pseudonym or anonym and giving an added entry for the real name may be enjoyed by the cataloguer of an individual library. The cataloguer of the National Centre will not have the time for it, in the tight time schedule set for him.

8 SUPREME SATISFACTION

The pilot project on pre-natal classification and cataloguing has been completed this year. It is a matter for supreme satisfaction. The full details are eagerly awaited. Thanks go to Dr Clapp for having lifted library problems from conjecture to systematic research. Naturally, projects of this kind call for much money, man-power, careful planning, persistent pursuit, and after-study of the findings. Faith in the social usefulness of the library profession, faith in library science, and faith in scientific method are necessary to organise such experiments. Dr Clapp has all that faith. He is also fortunately born in a country which has now affluence. It is also a country which gives not only money but also full freedom to the person put in charge of experiments. As one belonging to a country, now without these facilities and qualities, and still depending mainly on the unaided efforts of one or two pioneers, I enjoy a vicarious satisfaction in

Work being planned and executed by Clapp.
n my wife and son agreed in 1956 for my
ngs to be given away towards the foundation
e Serada Ranganathan Chair of Library
nce in the University of Madras, I had re-
ch of this kind in mind. Indeed, at the
ation of the Vice-Chancellor, I gave him a
orandum setting forth the areas ripe for
ediate research. I am looking forward
e first occupant of the Chair being a young
with research experience and capacity to
redit and starting research work in some
e areas indicated. I live in the faith that
will happen and that the successive occu-
s of the Chair will add continuously to the
nt of library science and that library ser-
based on it will be ever helping humanity
rds the realisation of enlightenment, delight,
eaceful life. May God grant this!

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